

Establishing a Quality Management System

7/31/2023

Quality Management – Four Pillars

Establishing a Quality Management System

Developing an Attitude Toward Improving Quality in Your Practice

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Quality Management – Four Pillars

Quality Management

Four Pillars of Quality Management

- Customer Satisfaction
- Process Improvement
- Fact-based Management
- Empowered Performance



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Cost of Poor Quality

- Total amount of money a company spends to prevent poor quality plus;
- The costs incurred as result of poor quality
 - Waste, errors, failure to meet customer needs and requirements,
- Three categories of costs
 - Prevention Cost
 - Appraisal Cost
 - Failure Cost

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Prevention Costs

- Planned costs to prevent error and failure:
 - Quality and process planning
 - Team coordination, customer/office standards and expectations
 - Information system costs
 - Communication planning, Information and issues management
 - Education and training
 - Quality administration
 - Reviews
 - Process control costs
 - Client/Market research costs
- Always much less than cost of inspection and correction.

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Appraisal Costs

- Verification, checking, evaluation during production and construction
 - Reviews, revisions, issues/change management
 - Built into Schedule and Communication Plans
 - Team process and outcomes reviews.
 - Post completion review and satisfaction evaluation
 - Built into Schedule and Communication Plans

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Failure Costs

- Internal failure
 - Rework/changes; corrective action
 - Inefficiency and downtime due to out-of-sequence work/overtime while rework actions being .
- External Failure
 - Claims; Rework
 - Customer complaint and loss of good will; loss of reputation

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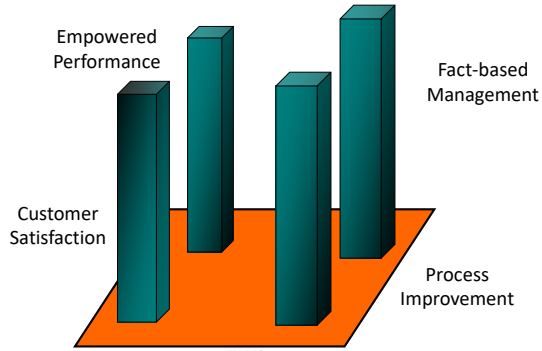
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The Four Pillars of Quality Management



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Who is “The Customer?”

- Anyone who uses a project deliverable
 - Client
 - Building Officials
 - Contractor and subcontractors
 - Engineers and special subconsultants
 - Building users
 - The public

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| Item | Quantity | Unit | Rate | Amount | Notes |
|------|----------|-------------------------|------|--------|-------|
| 1 | 1 | Project Description | | | |
| 2 | 1 | Design Development | | | |
| 3 | 1 | Building Approval | | | |
| 4 | 1 | Construction | | | |
| 5 | 1 | Final Inspection | | | |
| 6 | 1 | Handover | | | |
| 7 | 1 | Post-Handover | | | |
| 8 | 1 | Warranty | | | |
| 9 | 1 | Final Report | | | |
| 10 | 1 | Architectural | | | |
| 11 | 1 | Structural | | | |
| 12 | 1 | Mechanical | | | |
| 13 | 1 | Electrical | | | |
| 14 | 1 | Plumbing | | | |
| 15 | 1 | Fire Protection | | | |
| 16 | 1 | Energy | | | |
| 17 | 1 | Transportation | | | |
| 18 | 1 | Other | | | |
| 19 | 1 | Professional Fees | | | |
| 20 | 1 | Construction Management | | | |
| 21 | 1 | Other | | | |

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Customer Satisfaction

- Strategic Priority
 - Achieved by customer focused work systems supported by leadership
- Project Stakeholders
 - Directly and indirectly affected by project
 - Internal and external stakeholders
- Project Customers
 - Purchasers, end users, providers
 - *Key Project Stakeholders – SATISFY FIRST*

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Customer Satisfaction

- Work Systems
 - Functions and activities that interrelate to achieve goals/customer satisfaction
 - Input → Add value → Output
 - Imperative that leads understand the linkages between the parts of the work system and the people who work in them
- Quality Strategic Planning
 - The organization design and structure that produces customer satisfaction
 - Satisfaction goals
 - Non-quantified aspirations
 - Satisfaction objectives
 - Quantified aspirations

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Process Improvement

- Continual improvement of work processes to achieve customer goals and objectives
- Process improvement results in three types of quality improvement
 - Incremental cost reduction
 - Involves members of the project organization (whole team) gradually cut costs without reducing quality
 - Competitive parity
 - Dramatically change processes to match performance of “Best-in-class”
 - Breakthrough dominance
 - Revolutionize processes to leap competition.

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Process Improvement

Incremental Cost Reduction



Example: Reduce Multitasking

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Process Improvement



Competitive parity

Example: Inhouse 3D Visualization for rapid conceptual development

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Process Improvement

Breakthrough Dominance



Example: Specializing in Integrated Project Delivery through advanced project information systems

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1. Spontaneous:
Few of no process standards are used
2. Initialized:
Process awareness is widespread but ad hoc
3. Formalized:
Basic processes are standardized and institutionalized
4. Optimized:
Processes are systematically measured, continually improved and cross-functionally integrated with business operations.

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- Facts are used to monitor and manage processes rather than hunches, power or groupthink
- Gather quality data to determine what is true about performance
- Using facts to understand statistical variation
 - Common variation – the cumulative effect of numerous random variations of a system or process
 - Assignable variation – the effect of specific variation
- Control limits
 - Variations that do not fall outside of the “control limits” are not statistically significant
 - Variations that fall outside of the control limits are statistically significant.

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- Management problems when fact-based management is not used
 - Over control
 - Reacting to any fault, complaint, mistake as a assignable variation requiring management action
 - Leads to abusive management
 - Interfering with a stable system increases variation
 - Under control
 - Not reacting to any incident, assuming that it is part of the random or common variation
 - Neglecting to identify substandard performance or problems, retrain, dismiss substandard performers

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- Work performance
 - Behaviour associated with the accomplishment of role requirements by individuals
 - Norms, values and rewards systems that emphasize behaviour toward cooperation within the organization
- Individual Empowerment
 - Intrinsic task motivation – 5 dimensions
 - Responsible choice
 - Responsible for one's actions
 - Pivotal to job satisfaction, task motivation and performance
 - Meaningfulness,
 - The value a task holds for the individual
 - Competence
 - Belief in one's self of being capable of performing the task
 - Proactive learning
 - Learning from the performance on a task
 - Expectation of constructive feedback
 - Impact
 - That the individuals performance makes a difference to the outcome

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- Quality oriented firms require
 - Empowered team members who:
 - Respect themselves through performance
 - Those who don't relate poorly with the team
 - Respect other team members
 - Those who don't alienate team members
 - Leader does not solicit input

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Individual Empowerment

1. Responsibility
2. Meaningfulness
3. Competence
4. Proactive learning
5. Impact

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References

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