



# Using Quality Assurance Standards



Don't assume quality,  
ensure quality



# Learning Objectives

- At the end of this module, you will be able to:
  - Identify the difference between Quality Assurance (QA) and Quality Control (QC).
  - Identify ISO 9000 and Six Sigma programs.
  - List some considerations for implementing a quality assurance program.



# About FDIC Small Business Resource Effort

- The Federal Deposit Insurance Corporation (FDIC) recognizes the important contributions made by small, veteran, and minority and women-owned businesses to our economy. For that reason, we strive to provide small businesses with opportunities to contract with the FDIC. In furtherance of this goal, the FDIC has initiated the FDIC Small Business Resource Effort to assist the small vendors that provide products, services, and solutions to the FDIC.
- The objective of the Small Business Resource Effort is to provide information and the tools small vendors need to become better positioned to compete for contracts and subcontracts at the FDIC. To achieve this objective, the Small Business Resource Effort references outside resources critical for qualified vendors, leverages technology to provide education according to perceived needs, and offers connectivity through resourcing, accessibility, counseling, coaching, and guidance where applicable.
- This product was developed by the FDIC Office of Minority and Women Inclusion (OMWI). OMWI has responsibility for oversight of the Small Business Resource Effort.



# Executive Summary

- Every customer wants a quality product, and the government is no exception. With the government or its prime contractors, "quality will be assumed."
- When the government purchases products or services from your business, you will be subjected to a very definite standard of quality as specified in your contract. The level and type of quality standard will depend on the product or service being purchased.
- Quality Assurance (QA) standards are important when you do government work, whether as a prime contractor, subcontractor, or supplier.



# Quality Assurance Program

- A formal quality assurance program not only allows you to meet government contracting requirements, but also bolsters your position that you have the ability to meet the needs of the government with your product or service.
- The goal of your quality assurance program is to create written procedures that will assure full compliance with all contract requirements.



# Quality Standards Defined

*(Slide 1 of 3)*

- **Consensus Standard:** A set of quality attributes which, through consensus of its developers, provides a consistent process for producing the exact same product each time, e.g., ISO 9000. Standards may be adopted voluntarily or by regulation and should be reviewed regularly for ways to update or improve process(es).
- Benefits of standards include:
  - Documenting quality standards forces you to review all aspects of your process.
  - Providing a way to assure that an item complies with contract specifications.
  - Attracting buyers, including the government, because of its repeatable quality.
  - Saving money by providing the necessary indicators and tools to identify problem areas and ways to correct those areas.



# Quality Standards Defined

*(Slide 2 of 3)*

- **Quality Assurance (QA):** Planned actions (programmatic) necessary to provide adequate confidence or a performance guarantee that a product will perform satisfactorily:
  - Following defined processes before production.
  - Systematic approach for evaluation, inspection, testing, calibration, or whatever is needed to monitor and assure the quality of your product.
  - Use of checklists, company audits, and project audits.



# Quality Standards Defined

*(Slide 3 of 3)*

- **Quality Control (QC):** Physical actions taken on items or activities to verify adherence to specified requirements. QC is generally included as a segment of QA and includes:
  - Adherence to predefined quality assurance requirements.
  - Failure testing by physical examination, inspection, walk-through, or measurement of product for defects.
  - Verification that deliverables are of acceptable quality and that they are complete and correct.





# What are ISO 9000 Standards?

*(Slide 1 of 2)*

- ISO 9000 is a family of standards for quality management systems.
  - They were developed by International Organization for Standardization (ISO), patterned from a British quality program and first published in 1987.
  - The American Society for Quality (ASQ) and the American National Standards Institute (ANSI) also produce standards and work with ISO standards.
- ISO standards are:
  - based on a need to meet customer's requirements, regulations, and satisfaction.
  - adopted by organizations and then they must become accredited.
  - used worldwide—new edition is ISO 9001:2008.
  - applied broadly to all products; doesn't differentiate between picture frames and nuclear components.



# What are ISO 9000 Standards?

*(Slide 2 of 2)*

- ISO standards do not guarantee any quality of end products and services.
- Certification to an ISO 9000 standard certifies that formalized business processes are being applied, such as the following requirements for ISO 9001:2008:
  - Keeping a set of procedures that cover all key processes in the business.
  - Monitoring processes to ensure they are effective.
  - Keeping adequate records.
  - Checking output for defects, with appropriate and corrective action where necessary.
  - Reviewing individual processes and the quality system itself for effectiveness regularly.
  - Facilitating continuous improvement.



# Six Sigma Basics

- Six Sigma is the methodology for improving the performance of any organization by minimizing the defects in its products or services. Every error committed has a cost associated with it including:
  - Losing customers.
  - Redoing a task.
  - Replacing a part.
  - Wasting time/efficiency.
- Six Sigma implies losing almost perfect output resulting in only 3.4 defects per million opportunities (DPMO).
- DPMO: The term 'defect' is defined as the non-conformities present in the output that falls beyond the satisfactory customer limits.
- The number of defects present per million opportunities (DPMO) is used to determine as to which Sigma scale a particular process corresponds to.
- Most of the organizations around the world deliver results in the Three to Four Sigma band which implies that they are losing around a quarter of total revenue due to defects in their organizations.



# Applying Six Sigma *(Slide 1 of 2)*

- Define, Measure, Analyze, Improve, and Control (DMAIC) and Define For Six Sigma (DFSS) are the elementary methodologies that exist for two potential scenarios.
  1. **DMAIC:** This methodology is required to modify an existing process and make it Six Sigma compliant and more efficient. DMAIC is an acronym for:
    - **Define** the goals for process improvement in coherence with the customer's demand and the organization's strategies.
    - **Measure** the current performance and collect relevant data for the future.
    - **Analyze** the current setting and observe the relationship between key parameters and performance.
    - **Improve** the process based on the analysis to further optimize the process.
    - **Control** the parameters before they affect the outcome.




# Applying Six Sigma *(Slide 2 of 2)*

2. **DFSS:** When a new process is started that is Six Sigma compliant, the DFSS methodology is incorporated. It is sometimes considered as an offshoot of Six Sigma while other times, it is considered as an entirely different methodology. DFSS requires an Identify, Design, Optimize, and Validate (IDOV) approach:
- **Identify** and define the process goals in line with the customer's demands and industry standards.
  - **Design** includes defining all the possible solutions and selecting the optimal solution.
  - **Optimize** the performance by the application of advanced simulations and statistical modeling.
  - **Validate** or verify the selected solution.
- At times, DMAIC ends up in DFSS when the process under study requires a complete redesign to achieve the desired standards.



# When Implementing a QA Program *(Slide 1 of 2)*

- Begin by identifying the critical business tasks, processes, or systems and documenting instructions. Use the instructions for training and day-to-day reference. A QA program will reduce the:
  - Number of errors.
  - Waste of time and materials associated with errors.
  - Number of customer complaints.
  - Number of problems to fix.
  - Time spent on giving day-to-day instructions.
  - Time needed to improve processes and systems (by establishing a stable base).



# When Implementing a QA Program *(Slide 2 of 2)*

- Following a widely-accepted quality standard program, such as the ISO 9000 system, initially will save you time and money if you become certified. The implementation plan should include:
  - Quality coordinator.
  - Discipline task teams.
  - Quality team.
  - Policy development—quality and operational.
  - GAP analysis.
  - Map processes.
  - Quality manual development.
  - Communication/education/training.
  - Audit procedures.
  - Accreditation (optional).



# Evaluating a Quality Control Approach in a Proposal *(Slide 1 of 2)*

- The government evaluation will consider several factors to evaluate your Quality Control Approach in a proposal:
  - The degree to which your approach to quality control identifies processes, procedures, and metrics, which are likely to predict successful outcome within cost and on schedule.
  - Specific considerations of whether your proposal addresses a Quality Control Approach or identifies specific processes and procedures that are logical predictors of successful realization of stated mission objectives.
  - Other areas evaluated are:
    - Metrics identified in the Quality Control Approach that will logically predict success on the task.
    - Methods and procedures in the Quality Control Approach that will reliably collect the specified metrics.





# Evaluating a Quality Control Approach in a Proposal *(Slide 2 of 2)*

- How to Get Technical in a Proposal
  - Your Quality Assurance model and approach should illustrate processes which are likely to predict successful outcome of projected deliverables within cost and on schedule. The technical evaluation will review Quality Assurance from a risk management perspective to address the risk of noncompliance and the risk of missing the project objectives. Thus a Quality Assurance framework is essentially a component of your overall risk management framework. Quality Assurance Risk Management poses risk and opportunities to an organization.
  - Leading organizations define Quality Assurance as a continuous process of verifying or determining whether products or services meet or exceed customer expectations. This process considers design, development, production, and service. Your toolset for Quality Assurance should include evaluator accuracy, data processing, and report generation.
  - Your Quality Assurance model should address measures to Plan-Do-Check-Act (PDCA) as a four stage cycle, which you must go through to get from ‘problem-faced’ to ‘problem solved.’ All phases incorporate activities for continuous improvement to refine the scope to which PDCA is applied until there is a plan that involves improvement.



# Quality Control Approach

*(Slide 1 of 2)*

- The concept of the PDCA Cycle was originally developed by Walter Shewhart, the pioneering statistician who developed statistical process control in the U.S. Bell Laboratories during the 1930s.
  - It is often referred to as ‘the Shewhart Cycle.’
  - It was taken up and promoted very effectively from the 1950s on by the famous Quality Management authority, W. Edwards Deming, and is consequently known by many as ‘the Deming Wheel.’
    - **Plan:** Establish the objectives and processes necessary to deliver results in accordance with the expected output. Making the expected output the focus, differs from what would otherwise be. The completeness and accuracy of the specification is part of the improvement.
    - **Do:** Implement the process developed. Perform tasks as designed and expected by management, reinforced by training, and guidance from key stakeholders.
    - **Check:** Measure, monitor, and evaluate the implemented process by testing the results against the predetermined objectives and compare the results to ascertain any differences.



# Quality Control Approach

*(Slide 2 of 2)*

- **Act:** Analyze the differences to determine their cause. Apply actions necessary for improvement if the results require changes. Determine where to apply changes that will include improvement.
  - **Improve:** Improvement incorporates the tracking of individual processes with statistics on performance compared to stated objectives. This information can be used to work with internal stakeholders, customers, and suppliers to improve interconnected processes to enhance overall business performance.
- When a pass through of these four steps does not result in the need to improve, refine the scope to which PDCA is applied until there is a plan that involves improvement. It is highly recommended that you clearly illustrate a Quality Control Approach, and that of your strategic alliance partners in a format that is understandable by the federal government.



# Benefits of Quality Assurance

- Reduces cost:
  - Product is right the first time, there are no rework costs, no waste of material, no waste of manpower, and no disruptions in the production process.
  - Fewer claims for warranties and guaranties.
  - Cost of poor quality goes down.
  - Operating costs reduced, resulting in increased profits.
- Improves reputation:
  - Market reputation improved with organization's ability to produce good quality products that are consistently made according to the requirements of the customers.
  - Satisfied customers are easier to retain and generate more business.
  - Solid reputation helps attract new customers. New customers equal an increase in revenue.
- Reduces execution time: Quality processes reduce the cycle time to complete orders and allows for more production time.



# Quality Assurance for Subcontractors

- In many instances, a government prime contractor will pass along quality requirements to a subcontractor.
  - Because the prime contractor is responsible for the quality of the materials supplied by the subcontractors and suppliers, the prime contractor may find it necessary to pass along its quality requirements. It is in the prime contractor's best interest to ensure that all its subcontractors and suppliers are capable of meeting the requirements of the prime contract.
- To the surprise of many prime contractors and subcontractors, government quality assurance at the subcontractor level does not relieve the prime contractor of any responsibilities under the contract, nor does it create a contractual relationship between the government and the subcontractor. A small business owner who anticipates any sort of contract relating to a government project should consider implementing a quality assurance program in advance.



# Key Takeaways from This Module

- Without quality, your company will suffer from customer loss and financial loss.
- Use a written quality program to ensure you can offer your customers consistent products.
- Provide consistent products to keep production costs down and increase revenue.



# Sources and Citations

- Toolkit, *Quality Assurance Standards*
- DOE, *Quality Assurance Standards*
- HCL, *Quality Assurance*
- Adrian Woolcock, ProSidian Consulting, LLC, *Plan-Do-Check-Act (PDCA) As A Four Stage Cycle For Quality Assurance*
- Total Quality Assurance Services, *Importance of Quality Assurance*
- *Six Sigma Basics*
- Jennifer Blythe Whitley, ProSidian Consulting, LLC, *Using Quality Assurance Standards*