

MGM 1280.1  
REVISION E-2  
EFFECTIVE DATE: July 20, 2015

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# MARSHALL GUIDANCE MANUAL

DA01

## GUIDANCE FOR CONTINUAL IMPROVEMENT *With Change 2 (2/2/21)*

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### DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Change/ Revalidation/ Canceled)	Document Revision/ Change	Effective Date	Description
Baseline		9/27/2005	This guidance document replaces MPR 1280.9, "Continual Improvement."
Revision	A	2/7/2006	Deleted references to MPR 1000.1, MPR 1130.1, MPR 1130.2 and Implementation Plans due to changes in these processes at the Agency level. Deleted NPR 7120.5 – not used in text. Replaced MWI 8040.6 with MPR 8040.1. Updated the title of MSFC Form 426. Deleted MSFC-HDBK-3173. Updated web addresses.
Revision	B	2/23/2007	Changed PMC to CMC; updated definition in 3.5; updated URL in 4.2.2.1; revised A.1 to reflect new quality policy, CMC, Institutional Integrated Performance Summary, and Program/Project Performance Summary; updated title of MPD 1280.1 and MWI 8050.1; added MC-08, MC-21, and MC-25 to section 2; added new 3.6, 3.7, and A.6 for lean six sigma and CMMI; revised 4.2.2.
Revision	C	10/17/2008	Revised 2. Applicability statement to address the applicability of this Directive to the Michoud Assembly Facility. Deleted superfluous use of "MSFC." Updated 3.2 and reference document titles. Revised 3.6 definition for clarity. [On 1/11/10, at the request of the OPRD, administrative changes were made updating titles of reference documents and URLs, and updating 1. Purpose and other paragraphs to delete specific references to MAF as these are unnecessary.] [On 11/19/10, at the request of OPRD, an administrative change was made at 2.12 to update title of MPR 7120.1.]
Change	1	6/12/2012	On 6/12/12, at the request of the OPRD, administrative changes were made on cover to add expiration date and at 2.5, 4.1 and A.1.1 to change MPD 1280.1 to MPR 1280.10.
Revision	D	12/4/2013	Re-formatted to comply with new required template per MPR 1410.2J & as instructed in MWI 1410.1F. Updated several title changes to references and removed several references that had been cancelled. Removed reference to the cancelled "IDEAS" program in 3.2.2.2 and added reference to "ExplorNet."
Revision	E	7/20/2015	Replaced MWI 5330.2 with MPR 5330.2. Corrected URL to Formal Suggestion Program. Revised B.1.2 to reflect current practice. Deleted B.1.3, B.3.4 and B.3.7 to reflect current practice. Changed COTR to COR in B.3.6.
Change	1	4/17/2020	On 4/17/20, at the request of the OPRD, MSFC-HDBK-3173 Name changed to MSFC Systems Engineering Handbook.
Change	2	2/2/2021	On 2/2/21, at the request of the OPRD, administration changes were made to remove reference to MPR 1280.1, Management Review, that has been cancelled and change ExplorNet to SharePoint. Also removed page numbers from the Table of Contents and quotation marks from around document titles in accordance with NPR 1400.1.

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## **1. PURPOSE**

This Marshall Guidance Manual (MGM) provides guidance for continual improvement activities conducted by Center personnel, programs, projects, and activities, including contractors and resident agencies to the extent specified in their respective contracts or agreements. (“Contractors,” for purposes of this paragraph, include contractors, grantees, Cooperative Agreement recipients, Space Act Agreement partners, or other agreement parties.)

## **2. APPLICABILITY**

- 2.1 MPD 1000.1, MSFC Governance
- 2.2 MPR 1280.4, MSFC Corrective Action System
- 2.3 MPR 1280.6, Management Systems Internal Audits
- 2.4 MPR 1280.8, Customer Satisfaction
- 2.5 MPR 1280.10, Marshall Quality Management System
- 2.6 MPR 1410.2, Marshall Directives System
- 2.7 MPR 5000.1, Purchasing
- 2.8 MPR 5330.2, NASA Engineering and Quality Audit (NEQA)
- 2.9 MPR 7120.1, MSFC Engineering and Program/Project Management Requirements
- 2.10 MPR 7123.1, MSFC Systems Engineering Processes and Requirements
- 2.11 MPR 8730.3, Control of Nonconforming Product
- 2.12 MWI 1280.2, MSFC Customer Feedback (CF) Processing through the Corrective Action System (CAS)
- 2.13 MWI 1280.5, MSFC ALERT Processing
- 2.14 MWI 5100.1, Initiating Procurement Requisitions
- 2.15 MWI 5116.1, Evaluation of Contractor Performance under Contracts with Award Fee Provisions
- 2.16 MWI 8715.13, Safety Concerns Reporting System (SCRS)
- 2.17 MGM 8040.1, MSFC Configuration Management Guidance

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2.18 MSFC Form 426, Employee Suggestion Form

2.19 MSFC–HDBK–3173, MSFC Systems Engineering Handbook

### **3. GUIDANCE**

#### **3.1 Standard Processes for Improvement.**

Improvements are made on a routine basis through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions, and management review. (Reference MPR 1280.10) (See Appendix B for a brief summary of these standard processes for improvement.)

#### **3.2 Other Continual Improvement Activities.**

3.2.1 Other continual improvement efforts may take place using breakthrough projects or small-step ongoing improvement activities. Cross-functional teams are usually formed outside of routine operations to work on breakthrough improvement projects, while people or teams within an organization are the best source of ideas for small-step or ongoing process improvement. (See Appendix C for a general continual improvement process flow.)

3.2.2 There are also several methods for any employee to submit recommendations for improvements, including those listed below. Actions are assigned to appropriate organizations to evaluate suggestions and either implement improvements or provide an explanation if no changes are necessary. In addition to the programs listed below, organizations may also develop their own initiatives.

3.2.2.1 Formal Suggestion Program. Provides a Center-wide, formal process for suggestions that would benefit MSFC, NASA, and other Government agencies in achieving measurable improvements in organization efficiency, service, and cost reduction. (Reference MSFC Form 426 found in NASA Electronic Forms (NEF).)

3.2.2.2 MSFC Inside Marshall. MSFC’s Inside Marshall provides another avenue for improvement. It is “MSFC’s Internal Collaborative Network.” Communities can be established to collaborate, communicate ideas and work to improve the quality of communications, awareness, and information at Marshall. It allows for employees to collaborate with teams, ask a question, find subject matter experts, find information, share information, and allows for tracking and notification of updates to topics. Topics can range from very complex technical issues for flight hardware to simpler topics not directly related to Marshall products and services. (Access: <https://nasa.sharepoint.com/site/MSFC>)

3.2.2.3 Safety Concerns and Reporting System (SCRS). Captures ideas for improving MSFC’s safety, health, and environmental programs. This system can be accessed through Inside Marshall or the SHE Web page. (Reference MWI 8715.13.) (Access: <https://dml.msfc.nasa.gov>)

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3.2.2.4 Lessons Learned/Best Practices/Application Notes Standards Integration System. A Web-based tool for accumulating and sharing data related to lessons learned working with technical standards. (Access: <https://standards.nasa.gov/>)

#### **4. CANCELLATION**

MGM 1280.1E-1, Guidance for Continual Improvement, dated July 20, 2015.

*Original signed by*

Patrick E. Scheuermann  
Director

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## **APPENDIX A DEFINITIONS**

**Continual Improvement.** Recurring activity consistent with Center values to increase the ability to fulfill requirements, increase the effectiveness of the management system and its processes, improve safety, and make other improvements that enhance quality, productivity, and the Center's quality of life.

**Marshall Management System (MMS).** A system of organizations, policies, procedures, and processes that is documented in a set of directives and requirements delineating how business is conducted by the MSFC. The Quality Management System (QMS), Environmental Management System (EMS), and Occupational Health and Safety (OH&S) Management System are components of the MMS.

**Metric.** A standard of measurement.

**Objective.** An aim or goal toward which effort is directed. A strategic position to be attained or a purpose to be achieved by an organization.

**Quality Objective.** Something sought, or aimed for, related to quality. Quality objectives are generally based on the MSFC quality policy and should be measurable.

**Lean Six Sigma Continuous Improvement (CI).** A CI process that pursues the elimination of waste in processes and seeks to perfect processes through the application of Six Sigma.

**Capability Maturity Model® Integration (CMMI).** A process improvement approach that provides organizations with the essential elements of effective processes. It can be used to guide process improvement across a project, a division, or an entire organization. CMMI helps integrate traditionally separate organizational functions, sets process improvement goals and priorities, provides guidance for quality processes, and provides a point of reference for appraising current processes.

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## **APPENDIX B STANDARD PROCESSES USED FOR CONTINUAL IMPROVEMENT**

### **B.1 MSFC Quality Policy and Objectives**

B.1.1 MSFC policy is to provide quality products and services to our customers and partners through the NASA values. (Reference Marshall Policy Directive (MPR) 1280.10 for the full statement of the quality policy.) MSFC establishes quality objectives to support this policy. Directorate/Office-level objectives, including quality objectives, are established during strategic planning. Operational performance metrics are tracked in a center integrated institutional performance summary (Reference MPD 1000.1).

B.1.2 Objectives, including quality objectives, for programs/projects are established and tracked by the programs/projects (Reference MPR 7120.1). Program/project plans and/or quality plans establish objectives, including quality objectives, for products.

### **B.2 Audit Results**

B.2.1 Internal audits are used to evaluate compliance of processes documented in the Marshall Management Directives System and other specific program/project or customer requirements. Results of audits are documented in audit reports with corrective/preventive actions initiated and tracked using nonconformance reports (Reference MPR 1280.6).

B.2.2 In addition to the internal audit program, MSFC is periodically audited by external entities such as the NASA Inspector General (IG), the Government Accountability Office (GAO), and a Quality System Registrar. Corrective/preventive actions are taken, as necessary, in response to these external audits.

### **B.3 Analysis of Data**

Continual improvements are also achieved through analysis of data collected as part of the following ongoing processes:

B.3.1 Data on customer satisfaction is provided through MPR 1280.8 and Marshall Work Instruction (MWI) 1280.2. Corrective/preventive action, in relation to significant external customer complaints or any failure to provide quality products and services to an external customer, are initiated and tracked through the MSFC Corrective Action System. Less significant issues or issues from internal customers are resolved by the affected Directorate/Office outside the formal MSFC Corrective Action System. (Reference MPR 1280.4)

B.3.2 The process for handling nonconforming products is found in MPR 8730.3. Data relating to nonconforming product is analyzed and corrective/preventive action is initiated when necessary in accordance with MPR 1280.4.

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B.3.3 Data on conformance of product to design requirements is reviewed by each project prior to shipment of product. Any rework, repair, and redesign are documented and re-verified prior to completion of the certification/verification activity (Reference Acceptance Reviews and Integrated Readiness Reviews (IRRs) are in MSFC–HDBK–3173 MGM 8040.1 and MPR 7123.1).

B.3.4 MSFC Directorates/Offices review and evaluate directives and organizational instructions for continuing appropriateness, adequacy, and accuracy on an annual basis, at a minimum. Revisions include corrections and improvements (Reference MPR 1410.2).

B.3.5 Where appropriate, MSFC Directorates/Offices establish data collection and analysis of processes to monitor performance and determine where improvements in effectiveness or efficiencies can be made. Note that there is no intent to establish monitoring or measurement of all processes. Management determines where this is appropriate and when it is of value to the organization.

B.3.6 Supplier performance is monitored by the Contracting Officer (CO), Contract Specialist, Contracting Officer’s Representative (COR), Award Fee Coordinators, Monitors, and Safety and Mission Assurance (SMA) Directorate. Corrective action is taken as appropriate (Reference MPR 5000.1, MWI 5100.1, MWI 5116.1, and MPR 5330.2).

#### B.4 Corrective and Preventive Actions

Corrective and preventive actions, by their nature, provide for improvements to the MMS and to our end products/services (Reference MPR 1280.4 and MWI 1280.5).

#### B.5 Management Review

The management review process is also used to effect continual improvement. The Center Governance process ensures review of Marshall’s leadership, decision-making, management system, and mechanisms for monitoring and control for their continuing suitability, adequacy, and effectiveness, and assesses opportunities for improvement. Action items are assigned as necessary and stated at subsequent meetings (Reference MPR 1280.1 and MPD 1000.1).

B.6 New Technology Continuous Improvement Concepts. Organizations at all levels are encouraged to apply the latest mature technology/philosophy in continuous improvement (such as Lean Six Sigma and CMMI) to their internal processes through: seminars, continuing education, special briefings to employees, special training, etc.

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## **APPENDIX C GENERAL CONTINUAL IMPROVEMENT PROCESS**

C.1 Continual improvement efforts generally involve the following steps:

C.1.1 Identify an area for improvement such as an opportunity, innovation, or a process problem. The quality policy, objectives, available resources, and potential benefit from the improvement should be taken into consideration in determining appropriate areas to work.

C.1.2 Evaluate/analyze the existing process. Collect data to evaluate the efficiency and effectiveness of the process and to identify any recurring/significant problems. This data may be gathered from process monitoring or the corrective action system.

C.1.3 Select a specific area for improvement and set an objective for improvement.

C.1.4 Identify the underlying need for improvement or root cause of the problem, if any.

C.1.5 Explore alternative implementation strategies, solutions for the problem (if any), or plan the improvement to the process. Make recommendations to the appropriate approval authority/process owner.

C.1.6 Implement the approved improvements.

C.1.7 Evaluate the effects of the improvement. The selected problems, if any, should be eliminated or their effects decreased.

C.1.8 Modify the improvement as required.

C.1.9 Document any lessons learned as a result of continual improvement activities, as appropriate.

C.2 General Continual Improvement Process Flow. See next page.

**GENERAL CONTINUAL IMPROVEMENT PROCESS FLOW**

