

Statement of Work

Lean Six Sigma Training & Implementation Support

1. OBJECTIVES:

The objective of this Lean Six Sigma (LSS) Statement of Work (SOW) is to continue the training and implementation mentoring of NASA Specific LSS methods and techniques at the Langley Research Center (LaRC). In general this includes conducting training workshops utilizing Government-provided Statapult training aides that visually demonstrate NASA specific differences between Lean methodologies and the application of Six Sigma tools. This also includes mentoring Green Belt and Black Belt candidates through the NASA LSS certification program, assessing the process effectiveness and efficiency gains associated with chosen capstone projects, and ensuring those projects meet specific Program Excellence priorities established by key Center organizations. The ultimate goal is to transfer LSS related knowledge, skills, and capabilities to Government employees and support contractors through hands-on participation.

Successful implementation of this work requires technical knowledge of the aerospace industry; detailed knowledge of existing NASA aerospace processes and procedures; and practical experience Leaning aerospace system design, development, and manufacturing processes.

The following considerations will be key factors when selecting a contractor for this work: Price, the contractor's relevant and practical experience implementing LSS in aerospace based organizations, and the contractor's ability to meet the Government's schedule.

2. DESCRIPTION OF WORK TO BE PERFORMED

Task 1: Plan and conduct Center specific LSS training in compliance with guidelines established by the NASA LSS Program Office. This training takes the form of workshops oriented around implementation of LSS methods and techniques on actual Langley processes and procedures. There are three separate levels of training workshops (20, 40, and 80 hour) which correspond to the levels of LSS Champion, Green Belt, and Black Belt respectively. Specific workshop topics and training examples are derived from the needs and priorities documented in Directorate level Program Excellence plans as described in Task number 3. The contractor shall be on-site at the Langley Research Center during scheduled training events (see sections 4.a).

NOTE 1: Teaching individual modules of the training courses is considered continuing education for the certified Green and Black Belts. To this end the Contractor coordinates with the Center's team of certified Belts to encourage them to instruct individual course modules (individual modules require an average of about 3 hours instructional time). Based on historical trends there is an average of 17 students per course (with 37 and 9 students in the largest & smallest class sizes to date). The Center goal for this year is to complete training for 30 new Green Belt students and 12 new Black Belt students.

NOTE 2: For estimating purposes assume that no Green Belts or Black Belts are available to teach and the contractor teaches all the course modules.

Task 2: Mentoring trained Green Belt and Black Belt candidates through the NASA LSS certification program. Students who have completed the required training courses are considered candidates for certification but must complete appropriate levels of practical experience by facilitating one or more LSS events and complete an appropriately challenging LSS capstone project before receiving their certification. The contractor provides direct one-on-one mentoring to help guide candidates through this process. Specifically, advising candidate's on their proposed projects which includes evaluating the candidate's analysis of the problem statement, their formulation of event Charters, mentoring candidates' facilitation of focused events, development of an implementation plan for the future state, follow-through to ensure periodic reporting of implementation progress, and reporting return-on-investment metrics upon completion. Specific capstone projects are derived from the needs and priorities documented in Directorate level Program Excellence plans as described in Task number 3. In order to optimize time and availability of the candidates and the contractor it is desired that LSS events conducted in support of capstone projects be scheduled during one of more of the identified Blitz Weeks.

NOTE 1: Green Belt level projects generally address previously defined and narrowly focused problems and includes the complete planning and conduct of a single Kaizen type of event relating to the improvement of a single process or procedure. Black Belt level projects generally address a much larger scope and are often initiated to address vaguely defined issues that require further analysis to identify potential root cause(s) and contributing issues. Completion of the Black Belt project requires the candidates work with (mentor) one or more Green Belts to development and implement a series of related LSS events involving many different processes that frequently cross multiple organizational boundaries.

NOTE 2: The Center goal for this year is to complete the mentoring and certification of 30 Green Belt candidates and 10 Black Belt candidates. However, experience has shown that not all students who complete the training pursue the additional effort necessary to complete certification. Therefore the contractor is not accountable for the total number of students who complete the training or the total number of candidates who complete certification.

NOTE 3: For estimating purposes assume this effort includes an average of 8 hours of general mentoring each for 30 Green Belt candidates and 12 hours of general mentoring each for 10 Black Belt candidates. Also, assume this mentoring is conducted by email/telephone and occurs outside the scheduled training courses and blitz weeks.

Task 3: Facilitate development and implementation of Directorate level Program Excellence plans. Program Excellence plans represent an implementation strategy for NASA's Path to Program Excellence. Development and implementation of these plans may be used as the capstone project for a Black Belt candidate . Candidates demonstrate mastery of LSS methods and techniques by working with individual Center Directorates to identify and prioritize organizational needs and opportunities, define applicable LSS event parameters, document the organization's current reality, analyze and identify waste, optimize work flow and reduce flow friction, implement and validate corrective measures, measure and sustain the improved system, and finally communicate and acknowledge success. In order to optimize time and availability of the candidates and the contractor it is desired that facilitation of the excellence planning and development be scheduled during identified Blitz Weeks or in conjunction with scheduled Training events.

NOTE 1: For estimating purposes assume this effort includes 2 hours of mentoring per Excellence Plan and only six Directorates will choose to develop Excellence Plans and the required effort is included in the estimate for candidate mentoring.

3. APPLICABLE METHODS AND TECHNIQUES

In the course of performing Tasks 1, 2, and 3, the contractor shall teach advanced methods and techniques as appropriate to the contexts of the training workshops, selected projects, and excellence plans. Examples of these methods and techniques include but are not limited to: Process Leaning and the concepts of Muda; Process Kaizens; Product Development Kaizens; 6S Visual Management (Sort, Straighten, Shine, Standardize, Safety, Sustain); Value Stream Mapping (VSM); Heijunka Box scheduling; Gemba Walks; Kanban System Implementation; Poka-Yoke; Production Leveling and the concepts of Muri/Mura; Kanban on a production floor; Descriptive Statistics; Statistical Process Control; Inferential/Regression/Correlation Analysis; Sampling Theory; Measurement Systems Analysis (MSA); Design of Experiments (DOE); Probability Analysis; Tolerance Analysis and Optimization; Quality Functional Deployment (QFD); Critical to Customer (CTC) Analysis; Failure Modes Effects Analysis (FMEA); Design for Assembly (DFA); and Design for Manufacturing (DFM).

4. DELIVERABLES AND SCHEDULE

a. Training Events

- 1) Mar 15-19 Green Belt Class
- 2) Apr 13-15 Champion's Class
- 3) Jun 14-18 Green Belt Class
- 4) Aug 9-13 Black Belt Class (Week 1 of 2)
- 5) Oct 25-29 Black Belt Class (week 2 of 2)

b. LSS Blitz Weeks

- 1) Apr 12-16 Blitz Week 1
- 2) May 3-7 Blitz Week 2
- 3) Jul 26-30 Blitz Week 3
- 4) Aug 23-27 Blitz Week 4
- 5) Sep 20-24 Blitz Week 5

NOTE 1: Blitz weeks are when several (generally three or more) separate and unrelated LSS events are scheduled to occur during the same week. The purpose of concurrent scheduling is to optimize the time and availability for interaction between candidates and their mentor. During any given Blitz Week the LSS events frequently overlap and run in parallel. While the Center's Black Belts, Green Belts, and trained candidates facilitate the actual events, the contractor shall be on-site at the Langley Research Center during scheduled Blitz Weeks and is expected to move between events mentoring candidates or assisting with event facilitation as appropriate. (see sections 4.b).

NOTE: 2 For estimating purposes assume blitz weeks require only one contractor in-site, for 5 working days at 8 hours per day.

c. Periodic Progress Telecoms

The contractor shall participate in a weekly 1 hour telecom with the Technical Monitor and other members of the Center's LSS Program Office. During these telecoms the status of recent training and mentoring activities are discussed, details for planned activities are reviewed, and issues posing risks to the Center's LSS implementation are evaluated. This weekly telecom is the primary means of communications used to coordinate the Center's LSS Program implementation.

NOTE 1: For estimating purposes assume the periodic progress telecoms utilize a toll free government conference call number.

d. Event Charters

The contractor shall ensure an approved Event Charter is completed prior to facilitating an LSS event. While development of the Charter is the responsibility of the event's assigned Green Belt or Black Belt candidate, the contractor shall mentor the candidate in development of the Charter and work in close coordination with the event Sponsor and/or Champion to ensure the event properly supports the needs and priorities documented in the organization's Program Excellence plan. Copies of the charter are delivered to the Technical Monitor.

NOTE 1: A charter is a simple two-page document used to capture key information such as the issue or problem statement, associated scope and constraints, goals of the event, identified Champion and Sponsor, date-time-locations of the event, and the team lead/members.

NOTE 2: For estimating purposes assume 2 hours of effort are required per event charter and that a total of 15 charters will be developed. This should be estimated in addition to the general mentoring effort for candidates assigned to the event.

e. Pre-Event activities and Process Walks

The contractor shall ensure that appropriate pre-event activities and process walks are conducted prior to facilitating an LSS event. While planning and conduct of the pre-event activities and process walks are the responsibility of the event's assigned Green Belt or Black Belt candidate, the contractor shall mentor the candidate to ensure proper process performance metrics are identified and data collected and that a processes' Current State is measured to a level appropriate for subsequent analysis as compared with the processes' Future State. (see section 4.h regarding Return-On-Investments analysis).

NOTE 1: For estimating purposes assume 8 hours of pre-event effort is required per event and that a total of 15 events will be conducted during the contract period. This should be estimated in addition to the general mentoring effort for candidates assigned to the event.

f. After-Action-Reviews and Event Completion Reports

The contractor shall ensure that After-Action-Reviews are conducted at the completion of a Training Event or an LSS Event. This review is conducted at the end of the last day of the event and takes the form of a short (usually only 30 minutes) face-to-face meeting with the contractor, the LSS Program Office, and Green Belt or Black Belt candidates who participated in the event. The contractor shall also ensure that an Event Completion Report is developed at the completion of an LSS Event. The report has a standardized template that summarizes the event objective, participants, key activities, major accomplishments, lessons learned, and any follow-on or

implementation plans developed during the event. Implementation plans capture specific actions or steps necessary to transform the current state to the future state. While development of the Event Completion Report is the responsibility of the event's assigned Green Belt or Black Belt candidate, and the report is compiled by the event team as the last activity of an LSS event, the contractor shall mentor the candidate in development of the report. Copies of the report are delivered to the Technical Monitor.

NOTE 1: For estimating purposes assume one after-action-review per training course and one after-action-review per LLS event and a total of 15 events will be conducted during the contract period. Also, assume mentoring development if the report is included in the estimate for conducting LSS events.

g. Implementation Progress Reports

The contractor shall ensure that periodic Implementation Progress Reports are delivered to the event Sponsor and/or Champion. While development and presentation of the report is the responsibility of the event's designated Team Leader, the contractor shall mentor the event's assigned Green Belt or Black Belt candidate in working with the Team Leader to ensure a proper report is developed and delivered in a timely manner. Implementation Progress Reports are presented on a monthly or quarterly basis as dictated in the event Charter. Copies of the report are also delivered to the Technical monitor.

NOTE 1: For estimating purposes assume this effort is included in the estimate for candidate mentoring.

h. Return-On-Investment Analysis

The contractor shall ensure that a Return-On-Investment (ROI) analysis is performed after the completion of an implementation plan. The objective of the ROI analysis is to quantify the performance difference of a process before and after it was changed. While performance of the ROI analysis is the responsibility of the event's assigned Green Belt or Black Belt candidate, the contractor shall mentor the candidate to ensure the appropriate post-completion activities and process walks are conducted, that the proper process performance data is collected, and that any meaningful changes in the process performance are identified. A summary of the ROI analysis is delivered to the Technical Monitor.

NOTE 1: For estimating purposes assume this effort is included in the estimate for candidate mentoring.

i. Final Implementation Report

The contractor shall ensure that a Final Implementation Report is developed. The objective of this report is to document completion of the implementation activity. The bulk of this report includes the Event Completion Report and the ROI analysis results and is delivered to the event Sponsor and/or Champion. While development of the actual report is the responsibility of the event's designated Team Leader, the contractor shall mentor the event's assigned Green Belt or Black Belt candidate in working with the Team Leader to ensure a proper report is developed and delivered in a timely manner. Final Implementation Reports are presented within 10 working days of completing the ROI analysis. Copies of the report are also delivered to the Technical Monitor.

NOTE 1: For estimating purposes assume this effort is included in the estimate for candidate mentoring.

5. GOVERNMENT FURNISHED ITEMS

- a. The government will provide network and telephone resources, classroom and workshop space, and standard conference room furniture as necessary for conduct of the workshops, LSS related events, and specific site visits for performance of work under this contract.
- b. The government will provide copies of, or access to, all relevant government owned or controlled information (e.g., directives, publications, procedures) as necessary to perform work under this contract.
- c. The Government will provide training materials for each student, which includes copies of the government owned training presentation slides, training books and manuals, Statapults and related training aides as necessary to perform work under this contract.
- d. The government will provide necessary, available and reasonable access to functional personnel necessary to support work under this contract.
- e. The government will sponsor and facilitate the contractor's application for user accounts on relevant systems and servers necessary to perform work under this contract.
- f. The government will NOT provide computers, general office supplies, or printing/reproduction resources other than those identified above.

6. ORGANIZATIONAL CONFLICT OF INTEREST

- a. The Contracting Officer has determined that this acquisition may give rise to a potential organizational conflict of interest. Accordingly, the attention of prospective offerors is invited to FAR Subpart 9.5--Organizational Conflicts of Interest.
- b. All work performed under this Order will be unclassified; however, the Contractor may have access to contractor specific information of a proprietary nature as well as access to sensitive Government information. As such, the Contractor would be in a position to obtain non-public information, thus, creating a potential conflict of interest.
- c. The potential organizational conflict of interest cannot be avoided. Consequently, in order to mitigate the potential conflict, the Contractor shall submit a Non-Disclosure Agreement (NDA) template to the Contracting Officer for approval with the Contractor's proposal.
- d. At a minimum, the NDA shall state that to the extent the work under this contract requires access to proprietary or business confidential data of other companies or of sensitive Government information and as long as these data remain proprietary, confidential, or sensitive, the Contractor, its employees, subcontractors, and consultants

shall protect these data from unauthorized use and disclosure. The Contractor, its employees, subcontractors, and consultants shall refrain from using the information obtained in the performance of this contract for any other purpose than that for which it was intended.

- e. All contractor employees, subcontractors, and consultants shall be required to complete the pre-approved Contractor developed NDA. The signed NDA(s) shall be submitted within two (2) days ARO.

7. KEY PERSONAL

The Contractor shall suggest which Contractor personnel are essential to the work to be performed under this Contract. The suggested key personnel are subject to the review and approval of the COTR. Key Personnel may exist at the Contract level and for individual task orders.

NFS 1852.235-71 KEY PERSONNEL AND FACILITIES (MAR 1989)

- a. The personnel listed below (or specified in the contract Schedule) are considered essential to the work being performed under this contract. Before removing, replacing, or diverting any of the listed or specified personnel or facilities, the Contractor shall (1) notify the Contracting Officer reasonably in advance and (2) submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on this contract.
- b. The Contractor shall make no diversion without the Contracting Officer's written consent; provided that the Contracting Officer may ratify in writing the proposed change, and that ratification shall constitute the Contracting Officer's consent required by this clause.
- c. The list of personnel may be amended, with the consent of the contracting parties, during the course of the contract to add or delete personnel and/or facilities.

The following person(s) are considered Key Personnel [name and title]:

8. OTHER ESSENTIAL INFORMATION

- a. Period of Performance: The period of performance is from contract award through October 29, 2010.
- b. Place Of Performance: Portions of the work performed under this order can be performed remotely from the contractor's home office. However, during conduct of Training Events and Blitz Weeks (see section 4.a and 4.b) the work shall be performed at the Langley Research Center, Hampton, VA.

- c. Security Clearance, ITAR, and Other Special Handling Issues: Personnel working on this order shall comply with all Langley security policies and regulations.
- d. Non-disclosure Agreement: Personnel working on this order shall maintain an active non-disclosure-agreement with the government.