Lean Academy

Course

Virtual Assessment of Lean User Experience (VALUE)

**A Guide to Assessing Your Level of
Lean Enterprise Knowledge**

**Version 4.4 (abridged)
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Contents

1. Introduction

1.1 Purpose

The LAI Lean Academy™ Virtual Assessment of Lean User Experience (VALUE) assists LAI Lean Academy students in quantitatively assessing their level of proficiency in twelve Lean Enterprise Knowledge Areas, and in tracking their progression after completing a LAI Lean Academy course. By providing a quantitative measure of proficiency, an individual may communicate their capability to others using a simple metric characterizing their lean knowledge at any point in time. VALUE is not intended to be a "grade report" or other device for evaluating the performance of a student taking the LAI Lean Academy course. Rather, it is to be part of an integrated improvement plan for the user.

1.2 Usage

VALUE has several usages, including:
- Assessing a student's proficiency before enrolling in a LAI Lean Academy.
- Assessing a student's proficiency at the completion of a LAI Lean Academy.
- Assessing the LAI Lean Academy graduate's continuing growth in proficiency, e.g. during a summer internship, after a period of employment, or after continuing education.
- Communicating to other stakeholders the material covered in a LAI Lean Academy and the expected level of proficiency achieved by the graduates.

Approximately 30 minutes or less will be needed to read these instructions and complete a VALUE self-assessment.

1.3 Expectations

It is expected that students completing a LAI Lean Academy will have a VALUE level of at least 2 in all the Lean Enterprise Knowledge Areas, and in many of these to have reached a level 3. This would give an over all VALUE level in the high 2 range for a typical LAI Lean Academy graduate.

Entering LAI Lean Academy students will have a range of VALUE levels depending on their previous exposure to, and experience with Lean principles. In some cases students may have had no exposure at all and will have an entering VALUE level close to zero. This is quite acceptable, as the LAI Lean Academy curriculum assumes no prior knowledge in the subject area. On the other hand, if an entering student has a VALUE level higher than 2, they should consider if their time will be well spent by enrolling in the course.

1.4 Scope and Organization

The Lean Enterprise Knowledge Areas used in the VALUE are covered in Section 2. The relationships of these areas to the learning objectives of the LAI Lean Academy™ curriculum are shown in Appendix I.

Proficiency Levels that measure student capability in each Lean Enterprise Knowledge Area are described in Section 3.

Section 4 contains instructions for individuals to complete a self-assessment of their proficiency in the Lean Enterprise Knowledge Areas using two worksheets.

2. Lean Enterprise Knowledge Areas

Twelve Lean Enterprise areas are covered in the approximately twenty LAI Lean Academy instructional modules, plant tours, lunch talks by host site speakers, and interview with a Lean practitioner.

1. Context for Lean implementation in aerospace
2. Definition of Lean
3. Process concepts
4. Five fundamental principles of Lean Thinking
5. Lean tools and concepts
6. Lean office principles
7. Lean engineering principles
8. Lean supply chain management principles
9. Lean enterprise principles
10. Quality and Six Sigma
11. Role of people and organizations
12. Lean implementation

Appendix I shows the mapping of the 12 Lean Enterprise Knowledge Areas to the specific learning objects in each of the approximately twenty LAI Lean Academy modules and other learning elements. Reference to Appendix I will give the user a "next level" of understanding of the content for each knowledge area. Beyond this, the user should refer directly to the curriculum content distributed in the spiral bound class notes.

3. Proficiency Levels

Proficiency levels used in the VALUE are based upon MIT's Conceive Design Implement Operate (CDIO) Syllabus[1]. They are[2]:

0. To have no exposure to or knowledge of
1. To have experienced or been exposed to
2. To be able to participate in and contribute to
3. To be able to understand and explain
4. To be skilled in the practice or implementation of

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[1] Crawley, E, "CDIO Syllabus: A Statement of Goals for Undergraduate Engineering Education", CDIO Report 1, MIT Department of Aeronautics and Astronautics, Jan 2001 Available at http://web.mit.edu/aeroastro/www/ (select CDIO from menu)
[2] The CDIO Syllabus contains five proficiency levels. A sixth one (proficiency level zero) as been added for the VALUE in recognition that entering students may have no proficiency in a given Lean Enterprise Knowledge Area.

5. To be able to lead or innovate in

4. Instructions for VALUE usage

The VALUE is a guide for YOU to use to track your progress on gaining and using Lean Enterprise knowledge. It is important that you be careful and thoughtful when deciding on your proficiency level in each area to accurately represent your capability. Be honest with yourself as you think about your capability. It is better to err on understating your capability rather than misleading yourself, thinking that you are more proficient than you really are. A fundamental tenant of Lean is continuous improvement. Everyone – even the experts – can always improve.

The recommended approach for using the VALUE is to complete the self-assessment on your own, and then subsequently discuss your results with a person such as a supervisor, mentor, LAI Lean Academy instructor, or peer. Start by going through the Lean Enterprise Knowledge Areas one at a time, using the score sheet and referring   to Appendix I or the LAI Lean Academy course notes if needed. Each knowledge area contains many topics and you will have to "integrate" your knowledge over these topics to arrive at a single measure of proficiency for that area. Thoughtfully reflect on the proficiency levels, asking yourself questions such as those listed on the score sheet. When you arrive at a measure of your proficiency, write it in the appropriate box. You may use a first decimal, but don't go beyond that level of detail. For example, if you think your knowledge is close to a 2 in some topics of the knowledge area, but at a 3 in others, you might write down 2.4 on the worksheet.

After you have evaluated yourself in each of the 12 knowledge areas, transfer your scores to the worksheet, sum up your total and divide by 12. Write this down as your "Average Level". You will be asked to turn in your pre and post LAI Lean Academy proficiency levels. A separate "tear off" sheet is included for that purpose. Please also fill this out and turn it in when requested.

After completion, take time to discuss this with someone as a "closure" step to your self-assessment. Also discuss with your reviewer ways to improve your proficiency levels such as: participating in a Lean improvement activity; obtaining more instruction; reading literature from the LAI Lean Academy course notes Bibliography; or attending a Lean workshop. Jot these down on the space provided on the worksheet to complete the self-assessment. Keep the self-assessment for future reference.

LAI Lean Academy™ VALUE Score Sheet

improved lean practices in this area?

LEVEL 0:

To have no exposure to or knowledge of
- Have I never heard about these topics at all?
- Have I only heard about these topics in casual conversation?

LEVEL 1:

To have experienced or been exposed to
- Have I had some organized introduction or instruction to these topics?
- Have I used some of these topics in my work?
- Can I tell myself what these topics really mean?

LEVEL 2:

To be able to participate in and contribute to
- Do I know enough about these topics that I can comprehend what other people mean?
- Can I participate in give-and-take dialog on these topics?
- Have I ever participated in an event when this topic was used?
- Did I contribute to the discussion or action surrounding this topic?

LEVEL 3:

To be able to understand and explain
- To whom could I explain these topics?
- What would I actually tell them?
- Have I ever actually explained any of these topics to someone else?
- Have I written something about these topics?
- Have I given a presentation where I explained these topics or needed these topics to explain about a lean activity?

LEVEL 4:

To be skilled in the practice or implementation of
- Have I applied my knowledge in this area? How did I apply it?
- Was I able to improve enterprise value creation by applying my knowledge in this area?
- Have I applied my knowledge more than once?
- Did I learn new things about this area by applying my knowledge?

LEVEL 5:

To be able to lead or innovate in
- Have I ever lead a lean activity in this area?
- Have I taught someone else about these topics?
- Have I discovered new knowledge that has

LEVEL	KNOWLEDGE AREA
☐	**Context for Lean implementation in aerospace**: External factors driving change; transformation challenges; relationship to other industries; demonstrated benefits
☐	**Definition of Lean:** Definition of lean; 7 wastes; internal/external customers; value
☐	**Process concepts:** process elements; process maps; lead & cycle time; capacity; throughput; balancing; process capability
☐	**Five fundamental principles of Lean Thinking:** value, 3 types of waste, value stream mapping, flow, pull, perfection
☐	**Lean tools and concepts**: VSM; 5S; 5 whys; takt time; setup reduction; single piece flow; andon; kanban; standard work; JIT
☐	**Lean office principles:** value of removing time from administrative processes; identfy and appy lean thinking and analysis tools to office processes
☐	**Lean engineering principles:** customer value; product lifecycle; lean engineering tools; IPTs, info wastes PDVSM, DFSS
☐	**Lean supply chain management principles:** supplier added value; make-buy; supplier certification; tiers; vendor-managed inventory; 3PL; IT integration; suppliers as partners
☐	**Lean enterprise principles:** stakeholders; core, extended and lean enterprises; lifecycle and enabling infrastructure processes; lean enterprise management
☐	**Quality principles:/Six Sigma** product & process quality; 7 basic quality tools; DFSS; SPC; impact of quality on flow, Cp & Cpk
☐	**Role of people and organizations:** employee satisfaction; organizational structure; culture; leadership & management; 3 elements of collaboration; matrix organization; IPT
☐	**Lean Implementation:** Kaizen; continuous improvement; DMAIC

LAI Lean Academy™ VALUE Worksheet

Name: _____ Date: _____

Reviewed by: _____

*Proficiency Levels
0. To have no exposure to or knowledge of
1. To have experienced or been exposed to
2. To be able to participate in and contribute to
3. To be able to understand and explain
4. To be skilled in the practice or implementation of
5. To be able to lead or innovate in

Strategies to improve proficiency levels (use this space to make notes about ways to improve your Lean Enterprise proficiency):

Lean Enterprise Knowledge Areas	Proficiency Level*
1. Context for Lean implementation in aerospace	
2. Definition of Lean	
3. Process concepts	
4. Five fundamental principles of Lean Thinking	
5. Lean tools and concepts	
6. Lean office principles	
7. Lean engineering principles	
8. Lean supply chain management principles	
9. Lean enterprise principles	
10. Quality principles/Six Sigma	
11. Role of people and organizations	
12. Lean implementation	
Total	
Average Level (Total divided by 12)	

LAI Lean Academy™ VALUE "Tear Out" Sheet

Course Site: _____   Date: _____

Lean Enterprise Knowledge Areas	Proficiency Level*
1. Context for Lean implementation in aerospace	
2. Definition of Lean	
3. Process concepts	
4. Five fundamental principles of Lean Thinking	
5. Lean tools and concepts	
6. Lean office principles	
7. Lean engineering principles	
8. Lean supply chain management principles	
9. Lean enterprise principles	
10. Quality principles/Six Sigma	
11. Role of people and organizations	
12. Lean implementation	
Total	
Average Level (Total divided by 12)	