



VALUE PIL

Virtual Assessment of Lean User Experience – Proficiency Index Level

A Guide to Assessing Your Level of
Lean Healthcare Knowledge

Version 7.5
January 2012

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

1. Introduction

1.1 Purpose

The LAI Lean Healthcare Academy™ Virtual Assessment of Lean User Experience (VALUE) Proficiency Index Level (PIL) assists LAI Lean Healthcare Academy students in quantitatively assessing their level of proficiency in ten Knowledge Areas before and after taking the 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.

1.2 Usage

VALUE PIL has several usages, including:

- Assessing a student's proficiency before enrolling in a LAI Lean Healthcare Academy course.
- Assessing a student's proficiency at the completion of a LAI Lean Healthcare Academy course.
- Assessing the LAI Lean Healthcare 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 Healthcare Academy course and the expected level of proficiency achieved by the graduates.

VALUE PIL is not intended to be a "grade report" or other device for evaluating the performance of a student taking the LAI Lean Healthcare Academy course.

1.3 Expectations

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

Entering LAI Lean Healthcare Academy students will have a range of VALUE PIL 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 PIL level close to zero. This is quite acceptable, as the LAI Lean Healthcare Academy curriculum assumes no prior knowledge in the subject area. On the other hand, if an entering student has a VALUE PIL level higher than 2.5, they should consider if their time will be well spent by enrolling in the course.

2. Lean Enterprise Knowledge Areas

The topics covered in the LAI Lean Healthcare Academy curriculum are grouped into the ten Knowledge Areas. These do not represent specific modules as the topics are interspersed across 15 instructional modules, 2 guest speakers, and an A3 exercise. The Knowledge Areas are:

- 1 Context for Lean in healthcare
- 2 Healthcare enterprises
- 3 Lean six sigma fundamentals
- 4 Process and value stream fundamentals
- 5 Fundamental principles of lean thinking
- 6 Lean sigma methods
- 7 Lean six sigma tools
- 8 Lean six sigma applications in healthcare
- 9 People and organizations in healthcare
- 10 Implementing lean in healthcare

3. Proficiency Levels

Proficiency levels used in the VALUE PIL are based upon MIT's CDIO Proficiency Levels¹. They are:

- 0 UNAWARE To have no exposure to or knowledge of
- 1 AWARE To have experienced or been exposed to
- 2 READY To be able to participate in and contribute to
- 3 CAPABLE To be able to understand and explain
- 4 SKILLED To be skilled in the practice or implementation of
- 5 EXPERT To be able to lead or innovate in

4. Instructions for VALUE usage

The VALUE PIL is a guide for YOU to use to track your progress on gaining and using Lean Healthcare 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.

¹ Crawley E, Malmqvist J, Ostlund S and Brodeur D (2007), *Rethinking Engineering Education: The CDIO Approach*, Springer, New York. See pp 63-66. The CDIO model has five proficiency levels. Proficiency level zero as been added since entering LAI Lean Healthcare Academy students may have no proficiency in a given Knowledge Area. Each level has also been given a name.

The recommended approach for using the VALUE PIL is to complete the self-assessment on your own. Start by going through the Knowledge Areas one at a time, using the worksheet and referring to the rubrics on the left to gauge your level of proficiency. 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 worksheet. 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 ten knowledge areas sum up your total and divide by 10. Write this down as your “Average Level”. You will be asked to turn in your pre and post LAI Lean Healthcare Academy proficiency levels. A separate Score Sheet is provided for that purpose. Keep the original worksheet for your own records.

Suggestion

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 Healthcare Academy module Reading Lists; or attending a Lean workshop. Keep the self-assessment for future reference, and occasionally revisit it to see how your proficiency has changed.

LAI Lean Academy® VALUE PIL Worksheet

LEVEL 0 – UNAWARE:

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 – AWARE:

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 – READY:

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 – CAPABLE:

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 – SKILLED:

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 – EXPERT:

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 improved lean practices in this area?

LEVEL

KNOWLEDGE AREA

Context for Lean healthcare: Healthcare quality & safety, access, and cost drivers; demonstrated benefits of lean in healthcare and other sectors.

Healthcare enterprises: Core and extended enterprise; patient, provider, employee, supplier and other stakeholders; stakeholder value

Lean six sigma fundamentals: flow; quality; muda, muri, mura; variability; continuous improvement; respect for people; Gemba, Genchi Genbutsu; lean is a journey, not a state; lean is a way of thinking, not a set of tools.

Process and value stream fundamentals: inputs, outputs; process maps, value stream maps; takt, cycle, wait times; capacity, throughput, queuing; balanced work.

Fundamental principles of lean: customer value; value added, non-value added; value streams - people, material, information; single piece flow; pull; perfection

Lean six sigma methods: VSMA – current & future state; root cause analysis; A3 thinking; DMAIC; control charts; C_p , C_{pk}

Lean six sigma tools: 6S; 5 whys; 8 wastes; visual control; standard work; kanban; kitting; check sheet; Pareto chart; cause and effect diagram; mistake proofing; spaghetti chart

Lean six sigma applications in healthcare: primary care; emergency care; inpatient; laboratory; administration; material management

People and organizations in healthcare: teamwork fundamentals; communication; relational coordination

Implementing lean in healthcare: RPIW; PDSA, A3 Thinking/charts

TOTAL

AVERAGE = TOTAL / 10

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16.660J / ESD.62J / 16.853 Introduction to Lean Six Sigma Methods
IAP 2012

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