

LCS LEVEL DESCRIPTORS

VERSION 2201.1

CONTENTS

Introduction	4
Lean Thinking Definition	5
Descriptor Level 1a - Awareness	5
Summary	6
Prerequisites for Level 1a	6
Level focus	6
Course Knowledge Outcomes	6
Course practice outcomes	6
Indicative Topics	6
Delivery	7
Level Assessment	7
Knowledge	7
Practical Application	7
Descriptor Level 1b - Diagnosis & Analysis	8
Summary	8
Prerequisites for Level 1b	8
Level Focus	8
Level Knowledge Outcomes	8
Level Practice Outcomes	8
Indicative Topics	9
Delivery	10
Level Assessment	10
Knowledge	10
Practical Application	10

Descriptor Level 1c: Improvement & Implementation	11
Summary	11
Prerequisites for Level 1c	11
Level Focus	11
Level Knowledge Outcomes	11
Level Practice Outcomes	11
Indicative Topics	12
Delivery	12
Level Assessment	13
Knowledge	13
Practical Application	13
Descriptor: Level 2 – Technical	14
Introduction	14
Summary	14
Level 2a & Level 2b	14
Leadership Competencies	14
Prerequisites for Level 2	15
Level 2a	15
Level 2b	15
Level focus	16
Level knowledge outcomes	16
Level 2 Course/Programme Practical Outcomes	16
Level 2a	16
Level 2b	16
Indicative Topics	17
Delivery	18
Level Assessment	18
Knowledge	18
Practical Application	18
Descriptor: Level 3 – Strategic	19
Summary	19
Level 3a v Level 3b	19
Routes to the Qualification	19

LCS LEVEL DESCRIPTORS

Leadership Competencies	20
Prerequisites for Level 3	20
Level 3a	20
Level 3b	20
Level 3 Knowledge	21
Level 3 Practice	21

INTRODUCTION

The Level Descriptors are central to LCS, since they define what knowledge and implementation abilities an individual should possess. A programme or course aligned to a level should therefore closely reference its descriptor, with its learning/practice outcomes and well aligned.

Key points about the framework:

- Implicit in the framework design is that knowledge builds as the framework progresses, so a learner would be expected to have reached Level 1a before moving on to Level 1b and so on (except for Level 3).
- The division between Level 1b and Level 1c is not absolute and some topics and tools could fit in both categories.
- The importance of practical competence increases as the levels progress.

The Seven Levels

1 -Fundamental	Level 1a	Awareness
	Level 1b	Diagnosis & Analysis
	Level 1c	Improvement & Implementation
2- Technical	Level 2a	Implementation & Design
	Level 2b	Implementation & Leadership
3 - Strategic	Level 3a	Strategic Enterprise
	Level 3b	Strategic Supply Chain

The descriptors are **Principle** and **Outcome** based. This means that the descriptor is not prescriptive in demanding that a particular set of tools or techniques should be included in a course aligned to the level.

Key features of the descriptors include:

- Both lean knowledge and application requirements are specified.
- They are outcomes based, not focused on specific tools.
- They state the knowledge competence expected of an individual at a particular level, expressed as what an individual should be able to understand, describe, know, etc.
- They state the practical competence expected of an individual at a particular level, expressed as what an individual should be able to, apply, implement, analyse, etc.
- They provide guidance on the indicative contents of a course aligned to the level

Note that some aspects in the descriptors may not be sectorally applicable or relevant, in which case they can be ignored when aligning training to the framework.

LEAN THINKING DEFINITION

The LCS definition and interpretation of lean thinking, developed in the Lean Enterprise Research Centre, is one that promotes a holistic, systems approach to continuous improvement, acknowledging that lean is much more than simply improving processes through the application of tools and prescriptive principles.



Successful lean organisations employ lean strategies, lean leadership and understand the need for an engaged, empowered workforce.

The figure above illustrates LCS's six principles of lean thinking, a short definition of which is **delivering appropriate customer and stakeholder value with the minimum of resources**.

Lean Thinking is used as the umbrella term for a continuous improvement philosophy that encompasses a variety of approaches, that include tools and techniques from the Toyota Production System, six sigma, agile, the theory of constraints and systems thinking. Other commonly used 'improvement' terms include business improvement, service improvement, process excellence, operational excellence, operational effectiveness, systems thinking, business excellence and lean six sigma.

The LCS accepts that there are many different continuous improvement methodologies and maintains that different organisations require their own, bespoke implementation solutions for sustained, cultural change – thus adopting a contingent approach.

DESCRIPTOR LEVEL 1A - AWARENESS

SUMMARY

Individuals at Level 1a should have an awareness and a basic understanding of lean thinking principles and underlying continuous improvement concepts and an ability to understand and articulate fundamental lean ideas.

PREREQUISITES FOR LEVEL 1A

There are no prerequisites required for Level 1a

LEVEL FOCUS

On the underlying principles of lean thinking, its development and antecedents

COURSE KNOWLEDGE OUTCOMES

A1: Origins and evolution of lean thinking and continuous improvement

A2: Underpinning and related concepts and approaches

A3: Key lean/CI principles and frameworks

A4: Core elements of lean and CI

A5: Awareness of the human and strategic dimensions of lean thinking

COURSE PRACTICE OUTCOMES

There are no practice outcomes required for Level 1a.

INDICATIVE TOPICS

A course aligned to Level 1a will typically include several of the topics listed under each subject area below:

- **Origins & evolution, key contributors:** Ford, Taylor, Deming, Training Within Industry (TWI), Toyota-TPS (Ohno), Shingo, Womack & Jones.
 - **Underpinning and related concepts and approaches:** Scientific thinking and the 'scientific method'; systems thinking, process thinking, continuous improvement, Kata, Six Sigma, Theory of Constraints, Agile.
 - **Key principles & frameworks:** W&J's Five Lean Principles; Seddon's CHECK methodology; PDCA; DMAIC (& variants); ToC
-

- **Core elements:** Value, waste, flow, pull; value adding/non-value adding; the value stream; muri (overburden) and mura (unevenness); demand understanding - value and failure demand;
- **Human and strategic dimensions:** human dimensions and the enabling factors for sustainability and culture change; engagement, leadership, policy deployment.

DELIVERY

A course or programme designed to deliver Level 1a outcomes can be organised in several ways and there is no prescribed format. It will typically use a combination of:

- Face to face, taught in groups – in modules or blocks of hours/days.
- Digital delivery and eLearning.
- Blended learning

The total learning time guidance for a L1a course is between 3 and 6 hours. This will vary depending on the delivery methods used. For example face to face teaching with interactions and simulations will take longer, while courses digitally delivered will be shorter. Note that the total learning time could include face-to-face teaching, web based learning, post course activities, and assessments.

LEVEL ASSESSMENT

The assessment shall demonstrate that the outcomes have been achieved.

Knowledge

An assessment that demonstrates the learner can remember and understand L1a Lean Awareness, for example, through a multiple choice test or essay exam.

Practical Application

There is no requirement for practical application to be assessed at Level 1a

DESCRIPTOR LEVEL 1B - DIAGNOSIS & ANALYSIS

SUMMARY

A practitioner at Level 1b will have knowledge of lean diagnostic, analytical and planning techniques and the ability to use them in the workplace to understand customer/stakeholder value, the current state, solve problems and propose future states.

PREREQUISITES FOR LEVEL 1B

Level 1a

Note that this refers to the knowledge of L1a, rather than specifically the qualification. A course that encompasses several levels may not issue a L1a certificate, though it will cover L1a knowledge as part of the learning journey.

Accredited organisations can choose to have separate courses for L1a, L1b and L1c and certify at each level or have a programme that incorporates more than one level and only certify at the highest level covered, as suits their specific needs.

LEVEL FOCUS

On the diagnostic and analytical tools used to understand processes, customer value and to solve problems.

LEVEL KNOWLEDGE OUTCOMES

B1: Purpose, customer/stakeholder value identification and understanding

B2: Mapping techniques

B3: Quality approaches

B4: Problem solving techniques

B5: Basic data gathering/statistical techniques

B6: Planning and communication techniques

B7: Demand and capacity analysis and understanding techniques

LEVEL PRACTICE OUTCOMES

LCS 1b practice focuses on the ability to:

- Analyse a process/value stream through the application of mapping and other diagnostic techniques.
-

- Use problem-solving techniques to identify and define problems and issues and improve processes and quality.
- Understand how to improve and plan for improvements as a result of diagnostic activities.
- Undertake activities and use techniques to understand customer value and the 'voice of the customer'
- Recognise and map different types of value streams in organisations to create the 'current state'.
- Map processes in organisations.
- Understand variation
- Solve problems
- Develop 'future state' maps
- Undertake basic data gathering and statistical techniques to help diagnose and solve problems
- Understand customer/stakeholder value and analyse customer demand data

INDICATIVE TOPICS

A training programme that aims to cover the knowledge requirements for LCS Level 1b is likely to reference several of the following topics.

- **Purpose, customer/stakeholder value:** QFD; Kano; VoC; cycle of service; service encounter; idea management; public value (Moore)
- **Mapping:** current state and future state; value stream mapping, Learning to See, brown paper mapping; SIPOC; process mapping, spaghetti diagrams; quality filter; customer journey; swim lane; four fields; flow charts.
- **Quality:** Kano model; seven quality tools (cause-and-effect diagram/Fishbone, check sheet, control chart, histogram, Pareto chart, scatter diagram, flow chart/run chart); mistake proofing, Gaps model of service quality; poka yoke; checklists; variation reduction & six sigma, SPC; etc
- **Problem-solving,** FMEA; means-ends analysis; soft systems methodology; 8D problem solving; DMAIC; PDCA; A3; Five Whys; CATWOE; Four Frame approach; Drill Down; Cause & Effect (Fishbone) etc
- **Data and analysis:** seven quality tools; Design of Experiments; Measurement Systems Analysis /Gage R&R; surveys; Kingman's equation
- **Demand and capacity:** demand analysis and understanding; value/failure demand identification; ToC five steps
- **Planning & communicating:** QCD measures; A3; visual management; communication boards; project management and organisation; team roles and function; Agile approach - scrum

The topics should be contextualised for the organisation for which the training is intended and those selected will depend on several factors – such as the nature of the organisation's processes,

whether it is manufacturing products or delivering intangible services – internally or externally, whether it is private or public sector, etc. This list is indicative; some topics may not be relevant, some will require passing reference only and there may be other topics that are not included.

DELIVERY

A course or programme designed to deliver Level 1a outcomes can be organised in several ways and there is no prescribed format. It will typically use a combination of:

- Face to face, taught in groups – in modules or blocks of days.
- Digital delivery and elearning.
- Workplace based guidance and support – going to the ‘Gemba’.

The total learning time guidance for a course or programme is 40 hours. This can include face to face teaching, elearning, assessment, pre/post course reading/research, practical application, offline group work, on the job training and one-2-one support activities.

Learning hours shown are meant to be indicative and a guide, rather than prescriptive; they are not a target and ideally a consequence of delivering effective training that addresses stated learning outcomes.

Note that a course could encompass two levels – for example, L1b and L1c. In these cases the learning hours are not additive, as synergies and economies of scale come into play.

LEVEL ASSESSMENT

The assessment shall demonstrate that the outcomes have been achieved.

Knowledge

An assessment that demonstrates the learner can remember and understand L1b Diagnosis & Analysis, for example, through a multiple choice test, problem or case-based exams, oral exam, essay exam.

Practical Application

The successful Level 1b practitioner shall provide evidence of the application of L1b related tools and techniques in the workplace. Methods that should be used to capture the evidence include A3 reports, project reports, workbook, project portfolio/log or diaries.

DESCRIPTOR LEVEL 1c: IMPROVEMENT & IMPLEMENTATION

SUMMARY

A practitioner at Level 1c will have knowledge, understanding and application of lean improvement and implementation techniques.

PREREQUISITES FOR LEVEL 1c

Level 1a, Level 1b.

Note that this refers to the *knowledge* of L1a and L1b, rather than specifically the qualifications. A course that encompasses several levels may not issue a L1a or L1b certificate, though it will cover L1a and L1b knowledge as part of the learning journey.

Accredited organisations can choose to have separate courses for L1a, L1b and L1c and certify at each level or have a programme that incorporates more than one level and only certify at the highest level covered, as suits their specific needs.

LEVEL FOCUS

On the implementation and improvement tools used to improve and sustain processes.

LEVEL KNOWLEDGE OUTCOMES

C1: Workplace organisation and optimisation techniques

C2: Standard operations

C3: Visual management and performance measures

C4: Scheduling, and capacity planning

C5: Enablers for flow

C6: Management and planning

C7: People, teams and sustainability

LEVEL PRACTICE OUTCOMES

LCS 1c practice focuses on the ability to:

- Apply workplace organisation techniques
 - Implement standard work principles and tools
 - Use visual management and performance measures for effective communication and control
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- Implement capacity planning techniques and scheduling approaches
- Apply tools to enable flow
- Apply quality tools
- Apply techniques to understand the nature of demand and manage it effectively.
- Use policy deployment techniques to plan, measure and communicate
- Use key people or 'soft' skills to effect change, lead, coach, participate and communicate

INDICATIVE TOPICS

A training programme that aims to cover the knowledge requirements for LCS Level 1c is likely to reference the topics listed below. The list is indicative; some topics may not be relevant, some will require passing reference only and there may be other relevant topics that are not included in the list.

- **Workplace organisation:** 5S; cell design; layout; 3P – production, preparation, process; ergonomics
- **Standard operations:** SOPs; standards; leader-standard-work; TWI (job instruction, job methods)
- **Visual management and performance measures:** A3; display boards; Andon; team communications
- **Scheduling and capacity planning:** Theory of Constraints; pull systems; Kanban; Heijunka; drum buffer rope; CONWIP; runners-repeaters-strangers
- **Enablers for flow:** Takt time; TPM; SMED; OEE; demand management; mistake proofing/poke yoke; activity timing
- **Management and planning:** Policy deployment/Hoshin Kanri; project management; performance management; Scrum
- **People, teams and sustainability:** leadership; coaching; change management; facilitation; team management; personal communications; TWI (job relations)

The topics should be contextualised for the organisation for which the training is intended and those selected will depend on several factors – such as the nature of the organisation's processes, whether it is manufacturing products or delivering intangible services – internally or externally, whether it is private or public sector, etc. This list is indicative; some topics may not be relevant, some will require passing reference only and there may be other topics that are taught that are not included here.

DELIVERY

A course or programme designed to deliver Level 1c outcomes can be organised in several ways and there is no prescribed format. It will typically use a combination of:

- Face to face, taught in groups - in modules or blocks of days.
- Digital delivery and eLearning.
- Blended learning
- Workplace based guidance and support - going to the 'Gemba'.

The total learning time guidance for a course or programme is 40 hours. This can include face to face teaching, elearning, assessment, pre/post course reading/research, practical application, offline group work, on the job training and one-2-one support activities.

Learning hours shown are meant to be indicative and a guide, rather than prescriptive; they are not a target and ideally a consequence of delivering effective training that addresses stated learning outcomes.

Note that a course could encompass two levels – for example, L1b and L1c. In these cases the learning hours are not additive, as synergies and economies of scale come into play..

LEVEL ASSESSMENT

The assessment shall demonstrate that the outcomes have been achieved.

Knowledge

An assessment that demonstrates the learner can remember and understand L1c Improvement & Implementation, for example, through a multiple choice test, problem or case-based exams, oral exam, essay exam.

Practical Application

The successful Level 1c practitioner shall provide evidence of the application of L1c related tools and techniques in the workplace. Methods that should be used to capture the evidence include A3 reports, project reports, workbook, project portfolio/log or diaries.

DESCRIPTOR: LEVEL 2 – TECHNICAL

INTRODUCTION

Summary

Level 2 focuses on the advanced lean knowledge and leadership competencies required for lean management. Those with LCS 2 shall be able to design and implement programmes, and play a leading role in managing departmental or cross-functional teams.

A Level 2 practitioner should have:

- In-depth knowledge and understanding of the lean techniques and associated approaches required to develop a lean implementation programme to achieve business improvement objectives.
- Insight into the business implications of lean thinking to the wider enterprise and supply chain.
- The ability to lead lean programmes and projects.
- The ability to design and communicate strategically integrated lean programmes and projects.

Level 2a & Level 2b

There are two levels within LCS Technical:

- **Level 2a: Implementation & Design**
- **Level 2b: Implementation & Leadership**

Compared to a Level 2a practitioner, a Level 2b practitioner will have:

- Higher levels of responsibility in implementation projects, for example, having sole responsibility, as opposed to being part of a leadership team.
- Greater experience through holding a variety of senior CI roles in organisations.
- More Involvement in implementation projects or programmes with a significant scope, for example with inter-organisational dimensions, high strategic or transformational impact, or encompassing the extended enterprise or supply chain.
- A maturer and deeper understanding of CI thinking and associated schools of thought.

Leadership Competencies

Level 2 is primarily focused on being an effective lean leader and the overarching competencies are as follows:

- The ability to think in terms of processes, value streams and systems; knowing how to lead systems.
- The ability to problem solve, understand variability and waste.
- Understanding how we learn, develop and improve; leading learning & improvement.
- Understanding the behaviour of people.
- Giving vision, focus and direction to the organisation.

(Adapted from Peter Scholtes' list in The Leaders Handbook, 1998)

PREREQUISITES FOR LEVEL 2

The following can be used as a guide when selecting participants for courses or programmes aligned to Levels 2a and 2b.

Level 2a

- Qualifications/knowledge: LCS Level 1 (a/b/c) or equivalent
- Typical experience:
 - Approximately three years process improvement experience
 - Gained either through in house improvement or consultancy activity
 - Undertaken roles with supervisory aspects
 - Involvement as a team member in strategically aligned projects

Level 2b

- Qualifications/knowledge: LCS Level 1 (a/b/c), Level 2a or equivalent
- Typical experience:
 - Approximately five years practical improvement experience at a leadership level, involved in several strategically aligned projects.
 - Gained either through in house improvement or consultancy activity
 - Has undertaken CI roles in more than one organisation, division, or department.
 - Improvement activity encompassing cross-functional teams, supply chains or value streams.

LEVEL FOCUS

On the implementation and improvement tools used to improve and sustain processes.

LEVEL KNOWLEDGE OUTCOMES

There are no differences in subject matter between courses or programmes aligned to L2a and L2b.

The Level 2 practitioner shall know and understand:

- AB1 – Strategy formation and policy deployment techniques
- AB2 – Design and deployment of effective and relevant performance measures
- AB3 – Leadership skills for effective lean team management
- AB4 – Supply chain management (where sectorally relevant)
- AB5 – Advanced lean thinking knowledge and techniques, complementary approaches
- AB6 – Sustainable change and continuous improvement
- AB7 – Project management, implementation and control

LEVEL 2 COURSE/PROGRAMME PRACTICAL OUTCOMES

Level 2a

Deliver a practical implementation project that provides evidence that they can:

- Deploy resources and implement projects.
- Engage and communicate with improvement team members.
- Facilitate and sustain workplace change.
- Perform a leadership/facilitation role.
- Plan and design strategically aligned improvement projects, identifying the appropriate lean approach required.

Level 2b

Deliver a practical implementation project that provides evidence that they can:

- Deploy resources and implement projects.
- Lead and sustain workplace change
- Perform a leadership role, with high levels of responsibility.

- Plan and design a strategically aligned, business-critical improvement project, identifying the appropriate approaches required.
- Mentor, guide and support team members.
- Engage and communicate at all levels.

INDICATIVE TOPICS

A training programme that aims to cover the knowledge requirements for LCS Level 2 is likely to reference the topics listed below. The list is indicative; some topics may not be relevant, some will require passing reference only and there may be other relevant topics that are not included in the list.

Those selected will depend on several factors, such as the nature of the organisation's processes, whether it is manufacturing physical goods or delivering intangible services – internally or externally, whether it is private or public sector, etc.

- Advanced CI techniques: eg Factory Physics, lean design, new product/service introduction methods, TRIZ, Appreciative Inquiry
- Associated thinking: eg Theory of Constraints, Six Sigma, Systems Thinking, JIT, TQM, TPM, Agile etc
- Change management; sustaining change
- Coaching, guiding & mentoring
- Communication & facilitation
- Critical thinking, critical analysis
- Lean innovation & design
- Leader standard work, lean management
- Lean implementation frameworks and models
- Performance management & measures
- Strategy development, Policy Deployment/Hoshin Kanri, 'catch ball', visual management, QFD, setting direction, visioning, etc
- Project/programme management, implementation and control.
- Sustainability and cultural change
- Team leading, training, developing others

DELIVERY

A course or programme designed to deliver Level 2 outcomes can be organised in several ways and there is no prescribed format.

It will typically use a combination of:

- Face to face, taught in groups - in modules or blocks of days.
- Digital delivery and elearning.
- Workplace based guidance and support - going to the 'Gemba'.
- One to one coaching - particularly at Level 2b.

The total learning time guidance for a course aligned to L2 is 40 hours. This can include face to face teaching, elearning, assessment, pre/post course reading/research, practical project development, offline group work, on the job training and one-2-one support activities.

Learning hours shown are meant to be indicative and a guide, rather than prescriptive; they are not a target and ideally a consequence of delivering effective training that addresses stated learning outcomes.

LEVEL ASSESSMENT

The assessment shall demonstrate that the outcomes have been achieved..

Knowledge

A knowledge assessment shall evidence the practitioner can understand Level 2 knowledge, for example, through a multiple choice test (c. 40 questions), problem or case-based exams, oral exam or essay exam.

Tests can be delivered physically or online.

Practical Application

Practical application shall be evidenced by an implementation report of an improvement project with strategic or transformational dimensions. Consideration can also be given for interviews and presentations by candidates, especially for L2b.

The evidence can be in a variety of formats, such as an A3 summary with supporting evidence or an implementation report which typically would contain the following information:

- Executive summary
- Aims & background
- Description, method
- Results & analysis
- Conclusions, reflections & sustainability

DESCRIPTOR: LEVEL 3 – STRATEGIC

SUMMARY

Level 3 focuses on advanced lean knowledge and the strategic and leadership competencies required for lean leadership at a senior level. Those with LCS Level 3 capability should be able to design lean strategies for an organisation (or a significant business unit) and demonstrate appropriate lean leadership qualities and practices.

At Level 3 the emphasis is on implementation experience at a strategic or transformational level. Note that the difference between 3a and 3b is to do with scale, level of responsibility and scope of experience.

A Level 3 practitioner should have:

- High-level knowledge and mature understanding of lean philosophy, techniques and approaches and associated schools of thought.
- Knowledge of the strategic and management dimensions of lean implementation.
- Ability to implement and manage a lean strategy at an organisation or extended enterprise level.
- Wide implementation experience in several organisational contexts over a period of at least 10 years.
- Advanced and widely practised leadership and change management competencies

LEVEL 3A V LEVEL 3B

There are two levels within LCS Strategic:

- **Level 3a: Strategic Enterprise**
- **Level 3b: Strategic Supply Chain**

ROUTES TO THE QUALIFICATION

The Level 3 qualification is gained via the Approved Prior Learning & Experience route to certification and not via undertaking a training course with traditional assessments (as with LCS Levels 1 and 2).

Certification follows the completion of a Level 3 Programme, through which candidates submit evidence of their capability via an application form, case studies and an assignment. The process also involves a presentation to an LCS panel.

Candidates with a lean master's degree are eligible for exemptions, depending on the precise course undertaken.

A Level 3 Programme can be completed directly with the LCS or through a Level 3 accredited consultancy.

LEADERSHIP COMPETENCIES

The Level 3 focus is on being an effective lean leader and the overarching leadership competencies are as follows:

1. The ability to think in terms of processes, value streams and systems; knowing how to lead systems.
2. The ability to problem solve, understand variability and waste.
3. Understanding how we learn, develop and improve; leading learning & improvement.
4. Understanding the behaviour of people.
5. Giving vision, focus and direction to the organisation.

PREREQUISITES FOR LEVEL 3

The following can be used as a guide when selecting participants for a Level 3 Programme:

Level 3a

- Qualifications/knowledge: Degree, LCS Level 2b or equivalent
- Typical experience:
 - Approximately ten years improvement experience at a leadership level, involved in several strategically aligned projects.
 - Gained either through in house improvement or consultancy activity
 - Undertaken roles with supervisory aspects
 - Involvement as a team member in strategically aligned projects

Level 3b

- Qualifications/knowledge: Degree, LCS Level 2b or equivalent
- Typical experience:
 - At least ten years improvement experience at a leadership level, involved in several diverse strategically aligned projects.
 - Gained either through in house improvement or consultancy activity

- Has undertaken CI senior management roles in several organisations, divisions, or departments.
- Has undertaken improvement activity encompassing cross-functional teams, supply chains or value streams.

LEVEL 3 KNOWLEDGE

The Level 3 practitioner shall know and understand:

- Strategy development and policy deployment techniques
- Design and deployment of effective and relevant performance measures
- Leadership skills for effective lean transformation (eg change management, communication, coaching, mentoring, motivating, etc)
- Supply chain management
- Advanced lean systems knowledge and techniques
- Sustainable change and continuous improvement
- Project direction, implementation and control
- Complementary philosophies, approaches and thinkers

LEVEL 3 PRACTICE

The Level 3 practitioner shall be able to:

- Implement at significant scales and in a range of business environments
- Lead an organisation's lean transformation
- Coach and mentor colleagues and practitioners
- Create sustainable lean strategies and implementation plans, aligned to organisational strategy
- Apply lean in a range of core business processes (eg order fulfilment, new product development, sales acquisition, supply chain, etc)
- Implement and deploy a lean strategy in an organisation to achieve quality/cost/delivery benefits.
- Devise and apply effective and relevant value stream and supply chain performance measures.