EXIN Handbook Lean IT Leadership

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Author: Niels Loader
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About the author

Niels Loader
As advisor to tens of IT organizations, Niels has extensive knowledge and experience in implementing IT Service Management, IT Performance Management, Lean IT and DevOps within IT organizations. In 2011, he was one of the initiators of the Lean IT Foundation certification. He is currently Chief Examiner Lean IT for APMG Lean and the lead of the Content team of the Lean IT Association.

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Content

1 Introduction

Any publication on the application of Lean principles within any organization in any industry will mention the critical importance of leadership in the success of the initiative, or the lack of success if leadership is absent. Our experience supports this observation entirely.

It should therefore not be surprising that, in the range of certifications that constitute the EXIN Lean IT certification scheme, an EXIN Lean IT Leadership certification is included.

There are thousands of publications on leadership, many on leadership in IT, less on Lean leadership and very few on Lean leadership within the IT context. This handbook brings together published ideas on leadership, Lean leadership and leadership in IT, and combines this with practical experience from Lean IT practitioners, to provide a well-rounded view of Lean leadership within IT.

Much of the literature on Lean leadership describes the way leadership works in established Lean environments. In this document, we start with the premise that you and your IT organization are new to Lean or have little experience. We aim to describe both the state to which you should aspire (Chapters 3 to 6) and the journey from the situation of your IT organization (Chapter 7).
Our intent is to provide insights that will help you successfully use Lean principles within your IT organization.

Among the pre-eminent work done on Lean leadership, two books stand out: *The Toyota Way to Lean Leadership* and *Developing Lean Leaders at all Levels*, both written by Jeffrey Liker. These books both present a model of developing leadership. The first book describes the way leadership is developed at Toyota; the second is a more generic description of the key aspects of Lean leadership.

The model presented by Liker has been used for developing leaders within IT organizations and has proven to be very suitable. The Liker model will be used as the basis for this handbook, and we will demonstrate how it works in the IT context.

1.1 Leading in a Lean Environment

Thousands of leaders and academics have published their thoughts on leadership. There are libraries full of books from popular leaders who are well known and referenced through their quotes and one-liners, academics who have done comprehensive research into leadership all listing specific character and personality traits that should be considered key success factors of effective leaders.

The question then is: what defines Lean leadership specifically? The key to Lean leadership is that it is principle-based. A principle is a rule or core belief governing one's personal behavior, described in a clear statement. This means that leaders are expected to base their decisions and actions on clear statements. The clear statements do however leave room for interpretation and the leader's discretion. The idea is that leaders think and act according to the spirit of the principle.

1.2 Guiding Principles

The Shingo Model for Operational Excellence is one of the most widely known and used models containing principles for Lean. The Shingo principles are divided into a structure of guiding and supporting principles and represent the key values, which differentiate Lean Leadership from other

models. While you can argue that all positive principles and values apply to leadership, this is too broad a statement and does not help leaders focus on the aspects that really matter.

There are four Guiding Principles that we can clearly and directly link to leadership:

- Respect Every Individual
- Lead With Humility
- Create Constancy of Purpose
- Think Systemically

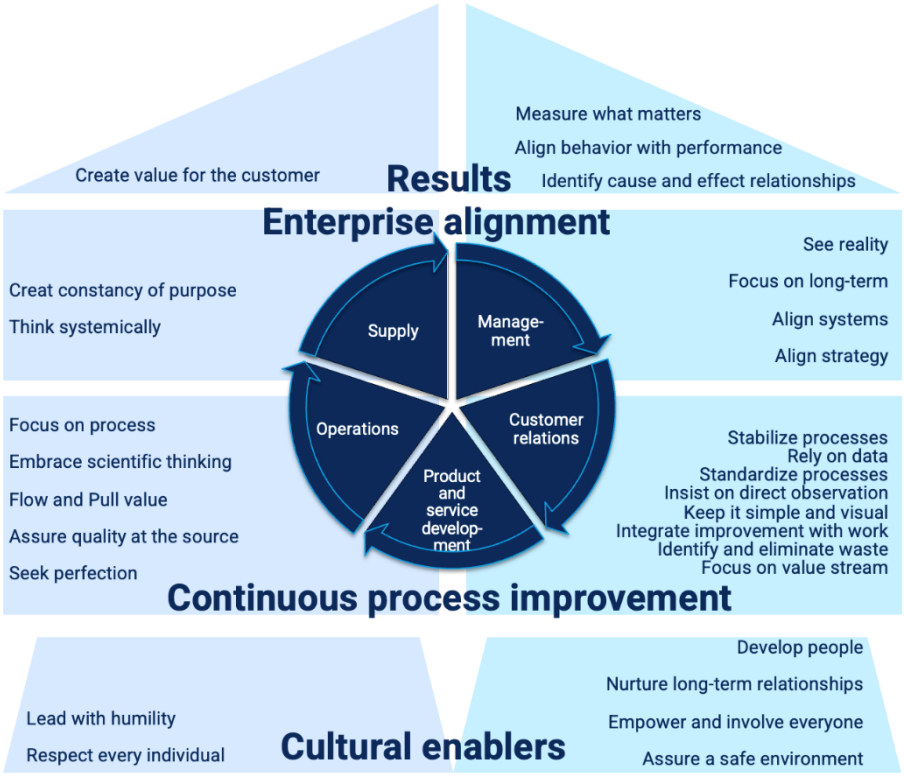

Figure 1: Shingo Model for Operational Excellence

Each of these Guiding Principles will be elaborated on in the following paragraphs.

1.2.1 Respect Every Individual

Respect is a principle that enables the development of people and creates an environment for empowered people to improve the processes that they "own". Respect must become something that is deeply felt by every person in the organization. It is something that must be reflected at the individual level, because individuals drive continuous improvement throughout an organization.

Respect for every individual naturally includes respect for individuals representing customers, suppliers, the community, and society in general. Individuals are energized when this type of respect is demonstrated. It is important to note that respect is only a slogan unless leadership takes its responsibilities seriously, in protecting both the environment and the health and safety of all the organization's stakeholders.

1.2.2 Lead With Humility

One common trait among students of Lean is a sense of **humility**. Humility is a guiding principle that precedes learning and improvement. A leader's willingness to seek input, listen carefully, and continuously learn creates an environment in which co-workers will feel respected and energized, and they will give freely of their creative abilities. There is also a need for humility on the part of all

members of an organization. Ideas can come from anywhere. One can learn something new from anyone. Improvement is only possible when people are willing to abandon judgement, bias, and prejudice in their pursuit of a better way. The humility principle is the opposite of humiliation. Do not confuse the two.

1.2.3 Create Constancy Of Purpose

J. Edwards Deming recognized the need to create **constancy of purpose** (the first of his "14 points"). It is the responsibility of leaders to find agreement on philosophical and strategic direction that provides a unifying vision. Once this unifying vision is articulated, performance measures that are tied to the attainment of that vision should also be established.

Changes in the vision and associated performance measures should be treated like changes in the national constitution. Organizations that frequently redirect philosophies and strategies do not understand the tremendous amount of waste associated with instability and fluctuation.

Lean practitioners frequently use the term 'True North' to represent the important and constant focus that organizations should have on value. As organizations maintain a True North focus, they will attain competitive and financial advantages that separate them from the pack. Common categories in which customer-focused True North metrics are developed include: morale, safety, quality, delivery, and cost.

1.2.4 Think Systemically

Systemic thinking is the principle that unifies all the other principles of operational excellence and enables companies to sustain their Lean culture and develop constancy of purpose centered on continuous improvement.

Leaders realize that the impact of synergy — of all parts working together — is far greater than the sum of the parts. This appreciation requires managers to move from thinking analytically about systems to thinking systemically.

Systemic thinking is comprised of three parts:

- Holistic thinking
- Dynamic thinking
- Closed-loop thinking

Systemic thinking occurs between parts of a system that occur over time, rather than snap-shot events.

- **Holistic thinking** is about understanding the interconnectedness of the aspects of larger systems. Holistic thinking means looking at 'the big picture' and being aware of the relationships between the components.
- **Dynamic thinking** focuses on creating a vision for the near or distant future. It aims to increase understanding of what has happened, what is happening and identifying what may happen in the future. It means gaining deep understanding of the dynamics of the situation and how these may be shifting.
- **Closed-loop thinking** requires understanding how changes within the system ripple across the value stream, affecting the work and behavior of other employees in the same department, in other departments, external customers, suppliers, and other stakeholders.

As leaders move into systemic thinking, the full value of operational excellence is realized as it moves across the organization, the enterprise it operates within, and ultimately the entire value chain. As employees at all levels of the organization adopt systemic thinking practices, they gain the necessary understanding to safely initiate improvement projects on their own. Ultimately, this understanding is what allows the improvement effort to move from being solely top-down to include more effort from the work floor.

These principles are the basis for Lean leadership. In the rest of this handbook, we will show how these principles also govern Lean leadership within IT.

In January 2015, McKinsey published a study of behaviors that contribute to effective leadership called *Decoding Leadership: what really matters*. In this study, they found that four behaviors account for 89% of the effectiveness of leaders. The four behaviors are solving problems effectively, operating with a strong results orientation, seeking different perspectives, and supporting others.

As you will see in the rest of this document, these behaviors are closely related to behaviors that are central to Lean Leadership.

1.3 Lean and Other Forms of Leadership

We have looked at what defines Lean leadership. However, is Lean leadership so different from other types of leadership? This answer is more difficult to give than it may seem. If we look at the intent of other leadership models, then there are no great differences.

Taking Jim Collins' Level 5 Leadership as one example of a leadership model not directly based on Lean principles but derived from practices in the great companies of the world, we see many similarities to Lean leadership.

The term "Level 5 Leadership" refers to a five-level hierarchy. Level 1 relates to individual capability, Level 2 to team skills, Level 3 to managerial competence, and Level 4 to leadership as traditionally conceived. Level 5 leaders possess the skills of levels 1 to 4 but also have an "extra dimension". Under the title "*The Triumph of Humility and Fierce Resolve*", Collins' 2001 article in the Harvard Business Review describes Level 5 Leadership in the following terms:

"The level 5 executive 'builds enduring greatness through the paradoxical blend of personal humility and professional will'.

In this excerpt, we clearly recognize the Lean principles Lead With Humility and Create Constancy Of Purpose. In the details, Collins describes personal humility in terms of a leader who

"... demonstrates a compelling modesty, shunning public adulation. The leader acts with quiet, calm determination; relies principally on inspired standards to motivate; channels ambition into the company, not the self; and looks in the mirror to apportion responsibility for poor results, never blaming others."

'Professional will' includes creating superb results by being a clear catalyst in the transition. A leader who demonstrates an unwavering resolve to do whatever must be done to produce the best long-term results.

"The Level 5 Leader sets the standard of building an enduring great company. The leader looks out the window, not in the mirror, to apportion credit for success of the company – to other people."
In other words, the Level 5 Leader sees and respects the contributions that others make. In this, we can recognize 'Respect Every Individual'.

Lastly, the Level 5 Leader creates a culture of disciplined thought, disciplined people and disciplined action. They also use technology both conservatively and in a pioneering way. The Level 5 Leader thus considers multiple aspects and selects the right choice based on what provides the most value: an example of 'Thinking Systemically'.

We see that some non-Lean forms of Leadership do, in fact, have a strong relationship with Shingo guiding principles. This is not surprising, since most people react well to the practices described,

thus creating value for any company. It stands to reason that these practices will be stated as best practices within successful companies. The reality in most companies, is that we generally find that traditional "western" leadership culture is either political or hierarchical in nature and do not often embrace the Lean or even Level 5 practices.

1.4 Lean Leadership

If we look at the effect of Lean leadership when truly practiced according to the principles, there are substantial differences in both the feel and performance of IT organizations that do use Lean principles and those that do not; with the Lean IT organizations achieving both a more positive 'feel' and better results.

To understand the concept of Lean leadership, we must first take a look at the differences between traditional western leadership and Lean leadership. Traditional western leaders have to be strong, proud and act like a superhero in order to achieve results repeatedly. They must achieve financial objectives in order to climb the organizational ladder.

In Toyota's experience, it takes about ten years before a leader can act like a mature leader. The leader must have all of the routines etched into his or her brain, to be successful. The leadership approach at Toyota expects leadership from, and grants authority to, individuals at much lower levels of the hierarchy than is typical in Western organizations. This approach produces three key outcomes in terms of leadership:

1. The dispersal of power and the expectation that leadership will come from the base of the hierarchy ensures that there is a constantly growing set of potential future senior leaders who gain experience on a daily basis
2. It ensures that change is driven by people closest to the problem which results in better problem solving, more sustainable solutions and the possibility of continuous improvement.
3. It, lastly, ensures that visions are cascaded down through the organization (Hoshin Kanri) and that the True North principles are being pursued are the organization's goals, not the goals of an individual leader.

Traditional Western Leader	Lean Leader
• Work to a financial plan	• Reach for True North Vision
• Quick Results	• Patient
• Proud	• Humble
• Climb ladder rapidly	• Learn deeply and gradually earn way up ladder
• Results at all costs	• Need the right process to consistently get the right results
• Achieve objectives through people	• Develop people through process improvement

Table 1: Traditional Western Leader versus a Lean Leader (Liker 2014)

Lean leadership is about demonstrating an honest interest in people combined with performance objectives. Structurally showing true interest in how employees execute their tasks, but not telling them how to do their work distinguishes Lean leaders from traditional leaders.

Lean leaders stimulate and inspire employees through dialog and by setting challenging expectations at the individual level. They inspire people to change from "just doing my work" to "my work makes a difference; it is necessary to achieve our long-term goals." They build systems and processes that cascade responsibility. Lean leaders influence by being knowledgeable, by getting into messy details, by coaching and teaching.

To close this paragraph, there is no better summary of Lean leadership than that provided by Fujio Cho, Chairman of Toyota. In six words, he encompasses the essence of Lean leadership: "**Go See, Ask Why and Show Respect**".

This is what truly sets Lean leadership apart from other forms of leadership; the emphasis on building organizations in which people truly respect one another for the contribution they make to the success of the organization and its customers.

Many IT managers have developed under the Western leadership culture as described in the table above. This fact alone means that integrating Lean principles into the way of working will not only be hampered by unfamiliarity and the need to learn but will be subject to the mental models currently in use.

A mental model is the complete set of assumptions about how the world works, and is based on our experience, education, and temperament. This is a lens through which we look at the world and interpret the information we receive from the outside world. In effect, the lens is our filter that helps us to understand and make sense of what we experience. It therefore also disturbs our view of the world and creates our perceptions.

Mental models that need to be adjusted when using Lean principles include:

- The move from the manager who knows best, to a leader who teaches and helps others closer to the problem to solve it
- A manager who leads through meetings, to a leader who goes to the work floor and sees what is going on
- Standards that are collected in binders, to simple instructions that are visible to all;
- Workers who need to meet quota requiring production to run as much as possible, to empowering employees to stop the work if they find an error. They then correct the error before moving the work forward in the process
- Making sure no blame is placed for a problem, to an environment in which problems are welcomed as part of daily work
- Leaving problems to be identified and solved by management, to mobilizing the people on the work floor to get engaged in solving problems, possibly with support from experts in specific areas.

These are all subtle changes in the mental models of leaders wishing to move their organizations to a Lean principle-based environment.

1.5 Lean Leadership Development Model

As stated above, this handbook uses the Lean Leadership Development Model as described by Jeffrey Liker. The model contains five key components: four steps for developing Lean leaders and a set of so-called 'True North Values".

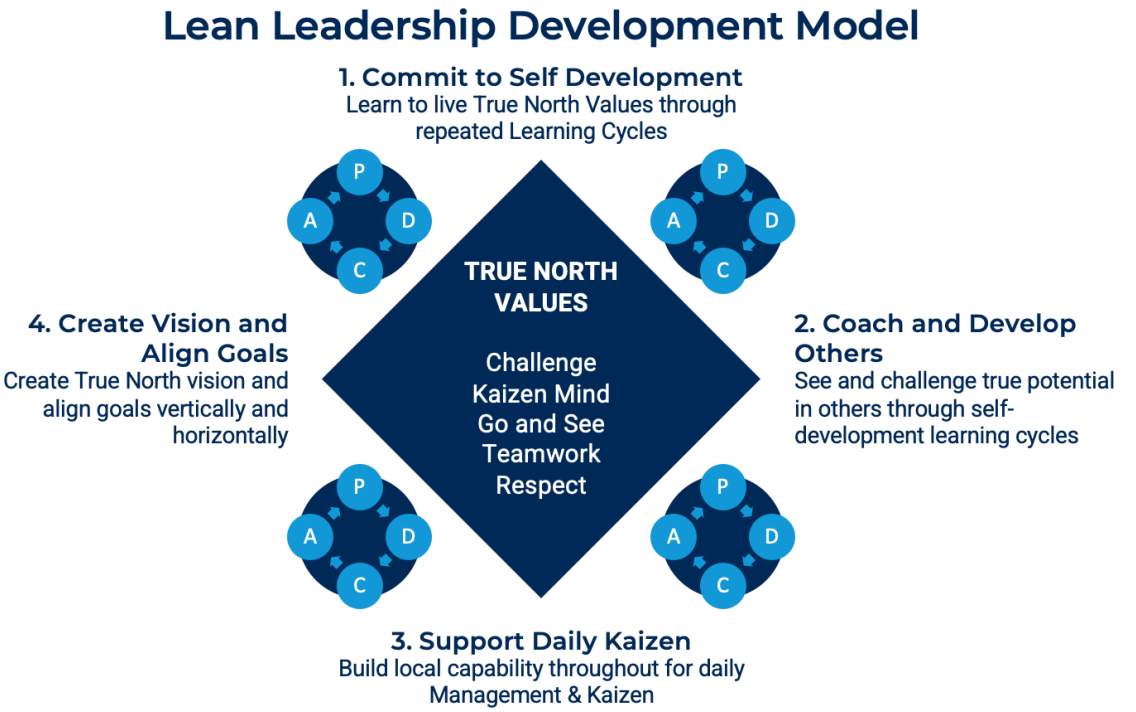

Figure 2: Diamond Model of Lean Leadership Development (Liker and Convis 2012)

A True North Value is a core value by which everyone within an organization lives. True North is what you should do, not what you could or can do. Liker and Convis identify five True North values based on their experiences at Toyota:

- Challenge
- Kaizen Mind
- Go And See
- Teamwork
- Respect

These values are strongly related to those used by Toyota and will be further elaborated on in Chapter 3. As Lean practitioners, we have challenged these True North Values and considered the possibility of alternatives that would apply specifically to IT organizations when applying Lean principles. In our deliberations, we have found that attempts to define different True North values or use different words to describe similar concepts have led us back to these five True North Values; they have constancy across the full Service Lifecycle and apply to all different types of IT organizations. In summary, they represent an excellent starting point, covering the key values that leaders starting on their Lean journey must adopt.
The development model itself describes four key steps:

1. Commit To Self-Development
2. Coach And Develop Others
3. Support Daily Kaizen
4. Create Vision and Align Goals

Each of these key steps will be briefly elaborated on in the following paragraphs.

1.5.1 Commit To Self-Development

The most important step for a Lean leader is to make the explicit commitment to develop. This means making a concerted effort to go through individual learning cycles focused on improving the ability of the leader to adhere to the True North Values and improve the ability to execute the other steps.

1.5.2 Coach and Develop Others

What the leader does for their own development, they must do for the development of others. This means identifying, mentoring, and nurturing the potential in others and ensuring that this is developed and used to best effect within the organization. This is done by providing appropriate challenges for individuals and teams and improving capability through training and coaching.

1.5.3 Support Daily Kaizen

This step means a leader must be constantly aware and attuned to the possibility to improve. They empower their people to address issues impacting customer value as they occur and at the source. This is not done through criticism, but through the ongoing dedication to remove obstacles that stand in the way of the people doing the daily work on behalf of the leader.

1.5.4 Create Vision and Align Goals

The leader must ensure that everyone in the organization knows what the organization stands for and what it is trying to achieve. Leadership establishes structures and processes to cascade "True North" principles throughout the organization and they nurture a culture of personal accountability to ensure that supporting goals are defined and accomplished. They ensure that goals are shared and are consistent across the individual teams within the organization.
In essence, the Lean leader recognizes that they cannot influence persons directly, but they can establish an environment where shared values, beliefs and principles guide behavior, attitude, effort, and actions. The Lean leader must lead by example in all of these areas.

1.6 Four Key Tools that Enable Lean IT Leaders to Develop

There are four key tools that help the leader to develop. These are:

- **Leader Standard Work (Chapter 3)**. This is about defining the standards that can be found in a leader's work and helps to identify where issues and deviations are happening in the leader's work. This is a strong trigger for self-development on the routine tasks of leadership, especially if the leader is not able to complete the required work within the time available. The daily rhythm of the leader must be carefully planned, to ensure the development of routines that support all aspects of leadership (self-development, developing others, ensuring continuous improvement, and developing vision and aligning goals).
- ***Gemba* Walk (Chapter 4)**. This means that the leader goes and sees what is actually happening on the work floor (*Gemba*). The *Gemba* walk is essential for both self-development and helping others to develop. It should also be a trigger for daily Kaizen and can be used to align goals.
- **Structured Problem-Solving (Chapter 5)**: This is a powerful tool for engaging the organization in the structural improvement of the way of working and the ability to deliver value to the customer. Lean IT Leaders must be able to guide workers in resolving problems. To do this, they must have mastered the tools for solving problems themselves. In this way, they can teach others.
- **Visual Management (Chapter 6)**. Without visual management, it is likely that there will be a lack of clear communication. Visual management ensures that facts are collected and presented so they are visible for everyone. In a functioning visual management environment, it is relatively straightforward to communicate vision and goals, and align them across the organization. Visual management is possibly the most powerful tool in the Lean IT Leader's tool set.

1.7 The Context of the Lean IT Leader

Taking a look at the use of Lean, we see an abundance of variations. In fact, initially Lean was synonymous with what is now called Lean Manufacturing. As Lean principles were applied in areas other than manufacturing, we saw the development of Lean Services, Lean Healthcare, Lean Government and, of course, Lean IT. This diversification is a result of the acceptance that the context within which Lean principles are applied is important in determining the way the principles are applied to unique value streams and units of work.
Even though the tools used in Lean Manufacturing and Lean IT may be exactly the same (e.g. Value Stream Mapping, Kaizen problem-solving, Visual Management), it is necessary to understand the context for a Lean practitioner to be effective within IT. While there are certain processes that are common across all industry verticals, there are unique value streams within IT related to planning, development, and operations of IT Services organizations. IT departments often consist of technically specialized experts. IT leaders do not always know and understand the details of what the experts work on. As a result, it can be more difficult to understand what a leader is supposed to see at the Gemba.

So, what is so specific about IT?

1.8 Type of Organization

A critical characteristic of the context of an IT organization is the flawed assumption that IT is seen as a supporting and sometimes non-core or non-essential 'department'. This is a flawed assumption on two levels:

1. The awareness is growing that IT is an inseparable part of the primary process and the underlying automation, which enables business outcomes. Most business decisions or functions have been built into information systems for efficiency, consistency, and quality control purposes. The people building and maintaining these systems are no longer just there to execute requests from 'the business' but are increasingly knowledgeable about the business process and can contribute intensively to the improvement and further automation of the business process. In summary, information systems and services are a critical part of the core business processes or often what is referred to as simply "The Line".
2. IT is, in fact, a business-within-a-business. In contrast to other supporting departments (like HR, Legal or Finance), IT contains the full range of business functions and develops products and services (i.e. the IT organization does research and development). The IT organization ensures that IT services run in production and that it provides support and maintenance for these products and services. IT usually manages its own finances, because these tend to be complicated in such areas as cost allocation or budgeting. The HR management for IT is increasingly seen as a separate, specialist discipline, as can be seen from the development of the e-Competence Framework. Often, IT departments need their own specialized purchasing and legal support to deal with the requirements for contracting external parties.

Altogether, IT should be viewed as more than a supporting department.

1.9 IT Silos, Culture, Value and The Focus on Flow

This section presents a cultural model that identifies the shifts in belief and behavior which impact how IT sees its role within a business context. We discuss how those changes enable or block an organization's willingness to share a common goal and participate in cross-functional value stream activities. In essence, IT culture and perception is moving from a focus on Technology to a point

where it understands its role within the context of providing services to the external market customer of the overall business.

At each stage of the cultural maturity model, the stakeholders of the IT Organization understand and care about Value Streams and Flow within the limit of their perceived involvement. For example, at the technology level, individual IT departments are only concerned with "Flow" in respect to processes within their own departments. Whereas at the third level, Enterprise IT Flow is a focus of IT functions involved in what can be called "Enterprise IT". However, it does not extend to other lines of business functions until the organization moves to a partner understanding.
The key premise of this model is that the focus of IT Strategy, Governance, Organizational Structures and Measures change as organizations evolve from one maturity level to the next. The evolution is manifested in changes in belief and behavior in how IT sees itself and becomes proactively involved in value streams, which exist, across the entire scope of the business.

This model can be found in full in the Lean IT book "*Run, Grow, Transform*" (Bell, 2012). The cultural relevance of Flow within an IT organization is defined on five different levels. The five levels are depicted in the table below.

Level	Description
External Customer Focused ***External Market Flow***	• Business revenue is directly generated by IT services • IT is key part of business process • Image, and value of business influenced by IT capability
Business Partner Focused ***Business Process Flow***	• IT part of strategic business planning processes • CIO responsible for more than traditional IT function • IT and business KPIs overlap
Business Customer Focused ***Enterprise IT Flow***	• IT services support the business process • IT organization is an enterprise function common processes & tools, with enforced standards • IT is taking and fulfilling orders from its business customer
System/Service Focused ***Application vs. Infrastructure Flow***	• Common services, tools & processes • Service-based Service Level Agreements • IT services defined as infrastructure and user-based services
Technology Focused ***Departmental Flow***	• IT technology domains (infrastructure/applications) • IT operations and Service Desk

Table 2: Five flows of IT value as defined by Bell (2012)

- **Level 1: Technology Focused**
  The value of IT flow is only understood from the departmental level, the focus is on technology domains. At the core of IT, we must ensure that the basic components of IT, the hardware and software, work correctly. At this level, we find the various technologies required to make IT services work. From a value stream perspective, process improvement will focus on IT Operations and basic support processes and functions such as the Service Desk.
- **Level 2: System/Service Focused**
  The next level focuses on the coherent cooperation of the IT components into IT systems and IT services, meaning that infrastructure and applications work together in the eyes of the customer. IT services are defined in such a way that their value is more or less recognizable to the customer. These services are typically initially defined as infrastructure

and user-based services, such as workplace services or a service, concerning an application, of which the name is recognizable for the end-user. At this level of maturity, the IT organization perceives two forms of flow: Plan and Build processes on the one hand and Run processes on the other. The various IT groups largely split themselves into two camps (Application Development or Infrastructure) and process flow is rarely considered to span or connect both groups. In short, IT is a house divided down the middle and this impacts how the organization looks at the flow of value through the respective value streams.

- **Level 3: Business Customer Focused**
  The customers of IT consist of colleagues in different parts of the business. They start experiencing real value when the IT organization recognizes that there are common value streams which span all IT functions and that services are understood to support business processes. Unfortunately, at this level, there is a false belief that IT as a service provider is somehow a disconnected supplier to the actual business. This delivery of value, infused with a supplier mentality, typically involves IT taking and fulfilling orders from its business customer. In order to make this work, the enterprise governance enforces standards across all IT groups. While there is a better understanding across the enterprise of the fact that IT is a function made up of both internal and external suppliers using common processes and tools, they hold to a false sense of separation from the other internal business units. This impacts their perception of value stream flow to only include those that exist with the Enterprise IT Function.
- **Level 4: Business Partner Focused**
  At this level, the belief that IT is somehow separate from the business is understood to be a false and damaging perception. As IT becomes focused on its business partners within other line of business functions the IT executives become an integral part of the strategic business planning processes. IT measures its success in terms of business transactional volume and the end-to-end availability of IT services, rather than just the uptime of IT components. Value is based on the fact that the organization becomes focused on ensuring that IT services are matched to business processes and the two (business process and IT service) are considered together. A CIO may gain broader oversight, taking on responsibility for other departments outside of traditional IT function (for instance: facilities, processing, fleet management). Value Streams are now understood to cross the entire business eco system enabled by supporting value streams within IT
- **Level 5: External Customer Focused**
  The highest level of value delivered by IT is when IT services can be sold in the market. The IT organization may be part of a larger enterprise or a commercial IT service provider and is explicitly focused on the external customer. Business revenue is directly generated by the sale of IT services to customers outside the enterprise. IT-based services and their digital transactions are perceived to be integral and synonymous with the business processes they support. This means that websites and apps that are made available to external customers are part of this level of value, even though the organization may not charge separately for their use. At this level of value, it is possible for market share and stock price to be influenced by the market's perception of the quality and stability of IT capability. Value Streams are now considered which directly involve external customers as well as internal partners and stakeholders.

The complexity of IT is found in the fact that all five levels of cultural maturity and understanding of flow (the Lean principle) can be found in different parts of an IT organization at the same time. This causes challenges in using the correct 'language' and issues with collaboration, as different parts of the IT organization have a different view of their role in supporting overall business value stream and flow improvement.

As a leader within IT, you will work with individuals who will, mentally, be at different levels of this model and may be confronted with the challenge of getting the various stakeholders to a common level of understanding. A team leader of a team responsible for a part of the IT infrastructure may be focused solely on technological issues. A Service Manager will likely look at the IT context from a system/service focus. Although, depending on the way the IT organization has deployed its

Service Managers, they may even have a business customer focus. The cooperation between the team leader and the Service Manager (and between their teams) is challenging. This challenge can be made more difficult by leaders looking at the IT organization from the business partner or external customer perspective. These leaders will be frustrated by the lack of interest and urgency to solve business issues evidenced by their peers in other parts of the IT organization.

The first three levels (Technology, Systems/Service and Business Customer) are absolutely essential for any value to be delivered, however they have severe limits of perception in relationship to understanding how IT supports business value streams. As stated earlier, IT is part of the primary business processes through, for example, the deployment of websites that bypass a customer service/sales department and create direct interaction with the external customer.

As a result of the above views on how IT creates value through flow, we find another complexity within IT. IT people tend to be confronted with many different units of work. These units of work include smaller, less time-consuming ones such as operational activities, incidents, service requests and standard changes, but also larger ones like non-standard changes, projects, or advisory work.

Not only are IT people confronted with this diverse range of units of work; they may have to work on all of these units of work within a single working day. This can lead to a confusing work dynamic, since each unit of work has different requirements, from high-stress – incidents that need to be solved instantly – to high thought-intensity planning related to the delivery of a complicated business automation solution, which requires careful consideration.

As a result of the explosion of technological capabilities within IT, language has been developed to ensure that IT professionals can distinguish between the various technologies and possibilities. IT people speak their own languages and have their own culture, to such an extent that in a large IT organization, infrastructure and application departments may have difficulties understanding one another. The proliferation of jargon also leads to communication difficulties with non-IT colleagues.

Lastly, and possibly most important, IT is ‘invisible’. The visible parts of IT development and operations are basically people and hardware. But what these visible parts actually do is not always easy to grasp. The way we measure performance, the way we steer the organization and drive results are intangible for management. This can lead to perceptions that do not match reality. Going to the IT Gemba requires an understanding of what is actually going on, and this means looking through the ‘invisibility’ of IT and understanding what really happens. An example of this invisibility can be found in the question: what is the Andon cord of the IT organization? This is also a mark of the difference between Lean IT and other forms of Lean.

A final word on the impact of the context of Lean IT: in his book, Liker himself refers to an IT example of the application of Lean principles as an example of ‘non-traditional Lean’.

2 Starting the Journey

Taking the step to adopt Lean principles means change. Often the primary perception is that 'the work floor' or people closest to the work need to change their way of working and their attitudes and behaviors. However, leaders need to change too. And it is often the senior leaders who do not truly believe that it is they who need to change first.

People in general, in many aspects of behavior, consistently believe they are better than they actually are (this is called the self-serving bias). Timely, relevant, and actionable feedback provides for the enlightening and revealing truth about our behavior and drives the change of mindsets. It is up to Lean IT Leaders to ensure that they lead by example and show that changing behavior is one of the keys to achieving the benefits possible from applying Lean to IT organizations.

The leader's impact on culture is known to be considerable. People's perceptions are strongly influenced by those in close proximity, both physically and psychologically, to them. They take their cues from those they consider significant and model their behavior accordingly. The various levels of leadership within an IT organization, and particularly the first line IT leader (the team leader), represents a crucial role model and influencer of sustainable success.

In combination with the effect of first line leaders, what senior IT leaders do and how they act has a powerful symbolic value. They help create stories about the Lean mindset and model behavior that will spread from person to person throughout the IT organization. These Leadership modeling activities can take place at any level of leadership and through actions of any kind. However, to be coherent and have the desired effect, the demonstrated actions must be consistent with the True North values.

The Lean Leadership Development Model clearly defines that the journey starts with the commitment to self-development. However, in practice, we have found that in IT organizations choosing to apply Lean principles, managers and leaders will readily say they will commit to self-development. The problem is that they have no concept, no idea of what this actually means. And this is understandable. If the IT organization does not have a culture of structured continuous improvement, coaching and team development, the chances of having leaders who understand the concept of self-development are slim.

In practice, it is best to start the journey with a small discussion of Step 4: Create Vision and Align Goals.

We have seen that IT does not entirely govern its own destiny; it exists within the context of a larger business eco-system. This context has existing demands and requirements regarding its IT services. These demands and requirements mean that the IT leadership team (consisting of all levels of management within IT) must be aligned before each individual leader knows what they are committing to or where they need to focus their self-development.

The process generally starts with the IT Management Team explicitly defining the vision they have regarding the IT organization. This vision is ideally in response to the larger vision of the business organization within which they exist and serve. This will typically include mapping of their primary service categories and the larger scale projects that need to take place from a service or technology perspective. It is in this vision that the IT management team must collectively commit to applying Lean principles within the IT organization, as an integral part of the vision.

Having agreed as a team to the definition of "True North", this collective commitment means that managers will support each other in the application of Lean principles in the IT organization. From this preliminary commitment to each other, each manager can commit to their self-development with Lean IT being the core of that self-development.

3 Committing To Self-Development

"I never stopped trying to become qualified for the job."
(Darwin Smith, CEO Kimberley-Clark from 1971-1991)

"The quality of a leader is reflected in the standards they set for themselves."
(Ray Kroc, Founder and CEO McDonald's)

Committing to self-development is the pre-requisite for the success of Lean within any organization, and it is no different for IT organizations. By self-development, we mean the act of reflecting honestly on one's own actions, thoughts, behavior, and attitude with the aim of making these more effective.

Self-development is an activity that requires both individual reflection and feedback from outside. This is why committing to self-development is more difficult than it may seem. Committing to self-development does not mean, for example, that you commit to reading a book about how to be a better leader and then doing your best to implement some of the ideas or suggestions; it means taking steps to change behavior. It is an activity that needs to be planned and carried out on a regular basis.

Toyota believes that the key trait that distinguishes potential leaders from everyone else is self-development. Leaders actively seek to improve themselves and their skills. Potential leaders need to be given the opportunity to self-develop and they need to be supported along the way of their development. **Leaders do not self-develop on their own**. This means finding the right challenges for self-development, allowing space for self-development, and coaching at the right times in the process.

Lean leadership is based on True North values. Values are personal and you should start with self-development to internalize these values in order to lead by the Lean Leadership principles.

3.1 True North Values and Leadership

We briefly looked at True North Values in Chapter 1 when introducing the Lean Leadership Development Model of Liker and Convis based on their experiences at Toyota (paragraph 1.5). In this section, we will take a closer look at the True North values as defined by Toyota. As we said earlier, these are a suitable starting point for the True North values of an IT organization starting out on its Lean IT journey.

- **Challenge**: Challenges create pressure to improve, and, therefore, must be welcomed rather than avoided. Maximum performance is when there is the right level of stress: neither too little nor too much. Learning and performance reduce if stress is too high. There is an equally important finding that if people are not challenged enough, they will stagnate, decreasing performance and learning.
- **Kaizen Mind**: Improvement is a daily task. We achieve systematic and continual improvement through a structured process. We approach any challenge by following the right process.
- **Go And See**: We rely on first-hand observation and learning to understand situations. Being at the *Gemba* will provide the greatest insight into problems and solutions.
- **Teamwork**: Teamwork and individual performance are two sides of the same coin. Great teams require highly developed individuals.
- **Respect**: Each individual has the right to contribute according to their strengths and capabilities and is encouraged to improve through coaching and learning. Customers,

society, team members, partners, communities in which you do business all deserve respect.

As you can see, these are universal values that apply to general leadership, and also more specifically to Lean leadership. Within IT organizations, we have found that these values are as applicable to IT leadership as to the line managers in a car factory. It is important to review these basic True North Values to determine whether you are prepared to commit to meeting the challenge that they present.

As we said earlier, you will likely wish to define other True North Values or use variations on the above values with different words. In the end, they must collectively help you to live by the Lean principles.

3.2 Capabilities and Skills to Self-Develop a Lean IT Leader

At a high level, self-development is about obtaining Lean IT Leader capabilities and acquiring a certain set of skills.

Capabilities a Lean IT Leader should obtain are the following:

- Understanding the core – True North – values, with the aim of ensuring that these values become the way you are and the way you think. Leaders deliberately learn and practice to self-develop their leadership abilities to fit into a continuous improvement culture
- Learning to manage from the *Gemba*, relying on truly understanding what is happening on the work floor to ensure that decisions and developments are based on reality. Leaders must become experts in observation and process improvement
- Being able to see and then respond in a way that moves the team forward through coaching and the removal of barriers, instead of stopping the team in their tracks. You must facilitate a disciplined problem-solving process. However, this does not mean solving your team's problems for them; rather it means mentoring and coaching other people to think about what the problem is
- Develop skills to drive a disciplined problem-solving process. The leader must help to develop these skills in others through deliberate learning and on-the-job development

Once these capabilities have been mastered, the leader can teach others through on-the-job development.

Self-development also means acquiring and practicing skills. What are the key skills that need to be acquired to become a proficient Lean IT Leader?

- Have an active and open mind while observing the work of the organization
- Practice active listening to hear what people are really saying, followed by investigation through unbiased questioning
- Apply systems thinking. That means understanding how different variables affect the work done by the organization
- Understand the actual strengths and weaknesses of each person
- Define problems clearly and identify the root cause
- Plan the execution of work and the allocation of resources to that work
- Identify countermeasures to the true root causes
- Translate plans into action with clear accountability
- Motivate and influence people across the organization (with no direct authority) toward common objectives
- Be able to teach others all of the above

This list is by no means exhaustive and can be further extended and detailed. However, the skills stated are the most important ones that a Lean leader needs to develop.

3.3 Challenge of Self-Development

Self-development is not necessarily something that comes naturally; it is not self-evident. In fact, everyone aims to live their life using routines and habits that make living easier and less tiring. For self-development to be successful, the individual leader must organize three aspects of their life:

1. Self-development requires deep commitment
Self-development has two aspects: developing yourself to become a Lean IT Leader and developing team members to become Lean IT Leaders themselves. The first step is to find people who are willing to commit to self-development, who wish to commit to learning the True North values of the IT organization, and who wish to *live* by these values.

Self-development takes time, and dedication to understanding one's behavior and changing it where necessary. You cannot teach someone who does not want to learn (including oneself); a person must be passionate about becoming a Lean IT Leader. Becoming a Lean IT Leader does not happen overnight; learning is a process that goes in small steps. Start with learning basic routine patterns of behavior followed by more detailed and extensive learning. Learning cannot be rushed. The learning process can, however, be facilitated by engaging others in the process.

2. You need a coach
Learning requires reflection and reflection means getting feedback from others. In the Lean tradition, each leader has a sensei, a teacher or coach, who helps to guide the leader's learning process. The sensei collaborates intensely with the leader to turn problems into learning moments by embodying the values, principles and techniques of Lean. You need a coach to develop yourself and you need to be or to become a coach to develop other Lean leaders. A coach helps to uncover blind spots and helps to maintain the commitment to self-development, simply by being there.

In Lean, every manager is expected to:

- **Figure out what they have to learn.** What is their personal challenge to better align their people's work with customer value and, in so doing, aligning sustainable, profitable growth with employee satisfaction?
- **Learn through observation of their staff's learnings**. This learning style is deeply embedded in personally observing daily operations (*Gemba*) – the manager's learning evolves from providing support for team-level learning activities. As the teams solve their problems or show initiative, the manager is expected to interpret their conclusions in the wider context of the business, as well as support further learning activities in the workplace. In other terms, if they learn, you learn. Lean's learning approach is very clearly learning-by-doing
- **Create a learning environment for their employees**. Learning on the job is never easy, particularly not with the pressures of today's business environments. Consequently, one of the key roles of a Lean leader is to create a visual environment for employees where the abnormal is easily distinguishable from the normal and where opportunities for small-step continuous improvement are clearly visible to all. A learning environment also means an environment in which mistakes are *not punished* but seen as sources of learning, and where employees feel they can thrive without fearing arbitrary, sudden changes

3. You need to practice
In the Western style of management, leaders are expected to be infallible; they do not make mistakes and they know everything they need to know. Practicing leadership implies that the leader does not know everything and is likely to make mistakes.

In practicing, we can use the PDCA (Plan-Do-Check-Act) cycle to support learning. We start the PDCA at a different point and the A takes on a different meaning; we start with the A:

- **Advance:** We select the job that fits the leader's next development step, to advance learning and growth

- **Prepare**: The leader must then understand gaps between the current situation and True North vision by going to the *Gemba* and gaining deep understanding of what is actually happening there. Also, the leader must build relationships with people on the work floor
- **Do**: The leader then leads and develops others to achieve challenging goals. This is where the practical experience of leading is tested
- **Check**: The leader then discusses their leadership experiences with the coach. This is often done during the 'doing' so that the leader can reflect, learn and apply the lessons learned

EXAMPLE: Let's look at an example of how this works in practice:

- **Advance**
  Charlotte is a highly competent team leader for her team of database administrators. She has proven her ability to manage the team to a good level of performance. It is time for her to take the next step. Charlotte has been a Database Administrator herself and is seen by her team members as the logical choice for team leader with the previous team leader leaving.
- **Prepare**
  The senior management recognizes her ability but needs to feel sure that she can use and develop her skills in a different environment. To further develop leadership skills, Charlotte is asked to manage a different department: a newly created team supporting the IT services for the HR department. The IT organization has chosen to create a DevOps team to deliver end-to-end support for all of the HR systems and business processes. The HR department uses two principal systems. In the past, there were ongoing conflicts about whether a change should be carried out in one or the other system, detracting from the fact that IT needs to deliver value to HR.
- **Do**
  The first thing Charlotte must do is gain insights from the work floor in what the team actually does, and what the issues are that they face. An additional challenge is that this is a completely new team, made up of IT engineers who previously have barely spoken to one another, despite working on closely related topics. Together with the team, Charlotte develops a vision of where the team needs to be and ensures that this vision is aligned with the overall goals of the IT organization. Subsequently, she leads and coaches the team members to shift their focus from their respective systems to a collective responsibility for delivering value to the HR department. Charlotte spends many hours sitting in the room, together with her team; simply observing what happens. She coaches her team members in improving their interactions and cooperation. She does this based on the collective vision of providing high value IT services to support the HR processes.
- **Check**
  Charlotte regularly asks her team for feedback. She also involves her manager (her coach) in helping to improve her capabilities as a team leader.

3.4 Guiding Development: Shu-Ha-Ri

Here, we must first introduce the term Kata. This Japanese term literally means 'form' and comes from the martial arts in which detailed movement patterns are practiced. Kata is the starting point for all learning. It is the defined routine for thinking and acting in a particular situation.

Lean calls this "Standard Work" where the current understanding of the best and most efficient way of doing something is documented and deployed. This definition for standard work then becomes the foundation of Kata. Kata is vital for learning. It is, in effect, the current best way of doing a particular task.

Within IT, an example of Kata can be found in standard changes, in the clearly defined process for investigating and solving a problem, in the work instructions for configuring an application or piece of hardware.

Shu-Ha-Ri is a model of learning based on the Kata. The process of self-development is guided by the principle of Shu-Ha-Ri. In essence, this is entails:

- **Shu** (obey): learning how to do something
- **Ha** (detach): then varying the way you do it
- **Ri** (separate): developing a new way of doing it

Shu (守) means "obey".
Shu is about learning the traditional wisdom; learning fundamentals, techniques and proverbs. The student must embrace the Kata and learn the defined routine exactly. Teaching is focused on ensuring that the student understands the need to follow the exact procedure. In this phase, deviation from the Kata is not acceptable. This phase of learning is about 'automating' routines. It is about ensuring that the activities become a routine, a habit. It is important that the work becomes automated because this reduces waste and leads to uniform quality of the product or service.

Within IT, new engineers become familiar with the IT environment by starting on operational activities; simply ensuring that the systems are 'cleaned up' on a daily basis so they continue to function correctly. A next step would be to carry out standard changes such as getting a new laptop ready for use. In both cases, the work will be accompanied by either a checklist or a set of steps to be followed in a specific sequence.

Unfortunately, in many IT organizations checklists and step-lists are seen as unnecessary documentation because they appear to contain obvious statements that "everybody knows already". In *The Checklist Manifesto*, Atul Gawande explains that even highly experienced surgeons are prone to forgetting key pre-operative steps that may cause serious problems during an operation. Checklists are an integral part of ensuring the Kata is defined in IT.

Ha (破) means 'detach'.
Within the model, Ha is about breaking with tradition; diverging from the kata. The person carrying out the Kata is permitted to improvise to a certain extent. The student has learned the routines; the basics are natural to him. He has turned the Kata into habits and no longer needs to think about the routines but is able to execute them automatically. The student can now diverge from the rules and improvise within the confines of the kata.

Within IT, an engineer will have moved on from carrying out standard changes to executing a non-standard change. This will need to be carried out according to the agreed change process, whereby small variations will be acceptable between the key decision moments. The engineer will be able to identify small improvements to, for example, the checklists for operational activities.

Ri (離) means "separate".
The practitioner transcends the need for techniques or proverbs. All moves are natural, without clinging to forms. In effect, the Kata is adopted and adapted to the individual since the form has been completely mastered. The student now focuses on deepening the understanding and skills and is truly free to learn the art of performance. What has been learned of the Kata is now so natural they do not have to think about it.

Executing a project is an IT form of Ri. The engineer is so well-versed with the execution of both standard and non-standard changes (which together make up the project) that they can improvise with both forms of change in the aim of achieving the project results. At the same time, the Kata of executing a project must be respected. Depending on how experienced the project manager is, she may even be at the Ri level in managing the project.

It should be noted that Ri is not the same as 'winging it'. Ri requires such a deep understanding of the important aspects of the Kata that these are done automatically. In the case of an IT project, this would mean that the project manager has a clear routine for keeping stakeholders informed of progress, which has become second nature. The way in which the communication is carried out

may vary, but the importance is so well-known that there is no chance that the project manager will ever forget to communicate.

It is vital for both IT engineers and leaders to progress through these three phases; otherwise, no improvement will take place.

3.5 Kata of Leadership

As we have seen in Chapter 1, the Lean Leadership Development model shows us there are four clear tasks for a leader which are elaborated on in the various chapters of this handbook:

1. Self-Development (chapter 3)
2. Developing Others (chapter 4)
3. Ensuring Daily Kaizen (chapter 5)
4. Developing Vision and Aligning Goals (chapter 6)

We introduced the four key tools in Chapter 1. These tools form the core of the Leader's Kata:

1. Leader Standard Work (chapter 3)
2. Gemba Walk (chapter 4)
3. Structured Problem-Solving (chapter 5)
4. Visual Management (chapter 6)

These tools all provide triggers for the Lean IT Leader to improve. This is another reason why the Lean IT Leader must be proficient in structured problem-solving: there are management problems to be solved. Not all problems are problems at the Gemba or in operational processes. There are also problems to be solved at upper and middle management levels. These problems cannot be delegated to others to be solved; the leadership team must solve them together. Triggers that can cause leaders to improve include:

- Deviations from Leader Standard Work. Management work was planned to be done in a specific way, but it ended up being done differently. This needs to be investigated.
- Leaders must continuously be aware of feedback from the *Gemba*. Visiting the *Gemba* and talking to people provides insight into successful, and less successful, leadership behaviors.
- The intrinsic motivation to improve (i.e. the Kaizen mindset), also gives clear indications where work at all levels can be carried out more effectively.

In this chapter, we will elaborate on Leader Standard Work in more detail.

3.6 Standard Work

"The repetitive pattern of activities that represent the current, least wasteful method of planning and controlling normal business processes." - Jeffrey Liker

Standard work answers the 5W+1H of a process – the who, what, when, where, why, and how. That being said, standard work is not necessarily hard and fast. Standard work is a collection and implementation of the best practices known to that point.

Standard work incorporates what is needed to start the process and the finished state of the process. This includes which resources to have on hand and how often these must be replenished, as well as defining how often work is delivered and where the work is done for optimal flow. Standard work is NOT the goal; optimized productivity, safety, and quality are the goals. Standardizing is merely a tool to ensure that those real goals are met. Standard work is more than a work instruction document. It is created by the process users, based on customer requirements.

Standard work should always be questioned, and improvements sought. Standard work is not perfect, but it is the best practice known to that point. Expect standardized processes to change as advancements in technology and Kaizen occur to identify opportunities for improvement.

3.7 Leader Standard Work

It is quite easy to define Kata for operational tasks. Defining the Kata of leadership is somewhat more challenging. The first step in the Shu-Ha-Ri of Lean IT Leadership is to define the Kata of your own leadership as a Lean IT Leader. This means building your Leader Standard Work.

Research (Liker, 2014) has shown that the repetitive nature of leader's work decreases as the hierarchical level increases. This merely means that the nature of the leader's standard work may be different. Standardization may take on a different character, but there is always work that can be standardized.

Leader Standard Work is a strategic list of standard tasks, performed regularly (daily, weekly, monthly, etc.) by leaders, to achieve strategy deployment and maintain continuous improvement momentum. It is a method to ensure daily progress which directs the leader to check on and support key metrics. It also ensures that the leader plans her presence on the Gemba.

Leader Standard Work is all about locking in the vital tasks that contribute most to the two key Lean aspects of doing the work and driving continuous improvement. Leader Standard Work structures the work of the leader so that they are proactive and not reactive. It is a clear way of indicating the intent of the leader. Tasks for which the leader reserves time, are obviously important. Effective Leader Standard Work is developed together with the team, since the leader is there to facilitate the work done by the team. Therefore, the work done by the leader must be focused on facilitation in a way that matches the requirements of the team. This can only be done in consultation with the team.

Leader Standard Work is beneficial in a number of ways. It makes work plannable and avoids the most basic problems, because how tasks need to be carried out has already been decided. Less resources are needed to achieve the desired results, simply because we have defined the best way of doing the work beforehand. Leader Standard Work helps leaders to sustain performance because they know what to do. Since the standard work has been written out and it is thus known what should be done, standard work is (by definition) achievable.

The ability of an IT organization to carry out the agreed Leader Standard Work is a mark of an IT organization that is in control.

As is shown in the figure on the next page, Leader Standard Work contains work with varying frequency. It starts with the daily routine. Weekly, monthly, Mand quarterly tasks are recorded so that they can be planned as and when required. Lastly, a Leader Standard Work list contains a space for reminders. These tend to be ad hoc activities that need to be carried out but are not yet standardized in such a way that they fit into the other categories.

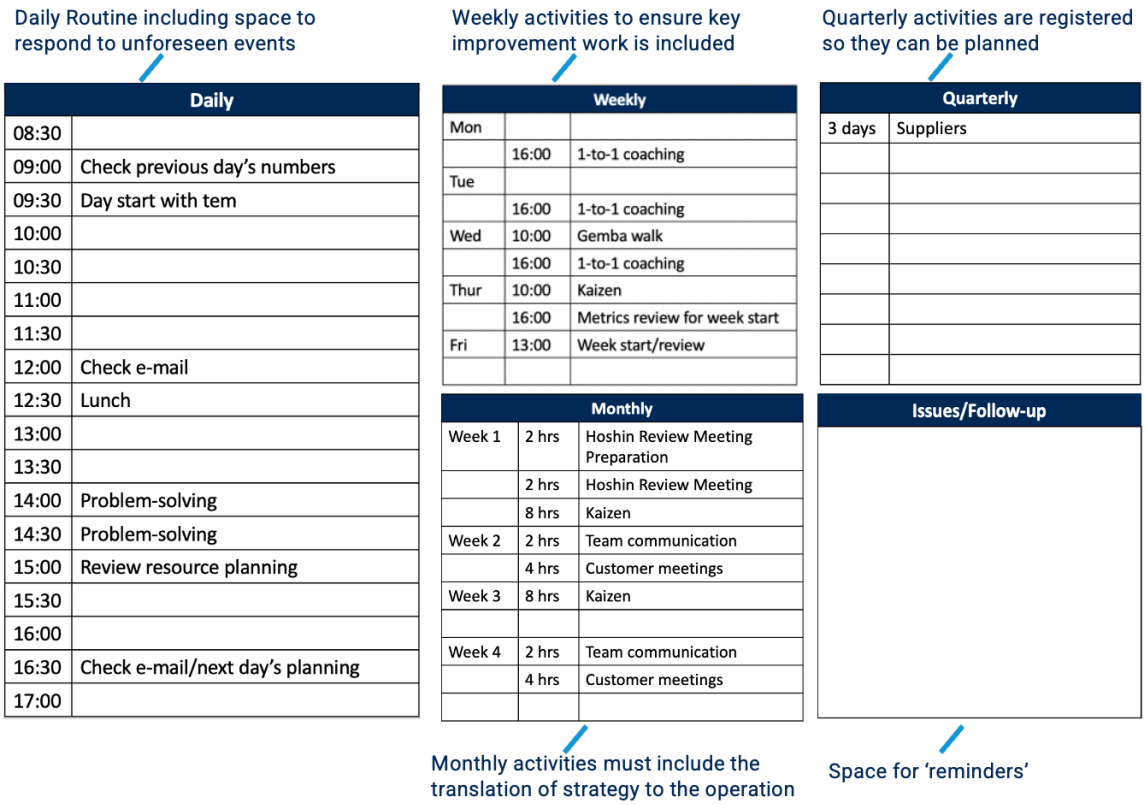

Figure 3: Example of Leader Standard Work

Leaders can plan their work to ensure they have space to work on improving the performance, capabilities, and quality of the IT services.

3.8 Leader Standard Work in IT

Within IT organizations, leadership work can be standardized as well. There are routines identifiable at all frequencies:

- **Daily**: attending day start(s), checking the previous day's performance reports, Gemba walk, individual coaching sessions, daily Kaizen activities, review resource planning
- **Weekly**: reviewing performance measures, attending week start(s), team coaching sessions, weekly improvement activities (e.g. processing issues on the improvement board), review week resource planning
- **Monthly**: activities to align goals, supplier meetings, customer meetings, improvement Kaizen, update longer term resource plan
- **Quarterly/yearly activities**. These activities appear to be special and one-off because they do not occur as often as daily or weekly activities. However, they do contain routine elements, or can be turned into routine activities through planning and standardization. An example is the annual budget cycle, with a quarterly review. Updating the service catalog, setting up new service level agreements and reviewing architectural roadmaps are examples of quarterly IT Leader Standard Work activities

3.9 Standardizing Meetings

Meetings are a source of a huge amount of potential waste if they are not managed correctly. Waste could be created on two levels:

1. **The running of the meeting itself**
   Meetings that are not standardized fail to reach their intended goal, because distractions cause the participants to deviate from the purpose of the meeting. Routine meetings are performed in a standard way, to increase the efficiency of time spent on addressing the agenda of the meeting, thus reaching its goal. The standardization of the meeting increases the ability of the attendees to focus on the important aspects of the meeting, such as: decision-making, communicating decisions, or agreeing on distribution of work.
2. **The connection between different meetings**
   There are inherent links between many of the meetings within an IT organization, especially between the routine meetings. Thus, it is vital to synchronize these meetings throughout the organization. Synchronizing increases predictability and efficiency of time spent on coordination. Standardizing routine meetings means fundamentally aligning the agendas of the various levels of management and the teams. This is done by analyzing the agendas of all leaders (known as a 'day-in-a-life-of' analysis) and identifying recurring meetings, timeframes, involved roles and required decisions. The key to successfully aligning agendas is to start with the needs of the work floor, thus placing emphasis on the operational work. Then align the various leadership levels with whatever needs to be facilitated on the work floor.

3.10 Why Do We Standardize?

As a final argument to emphasize the need to standardize, we will take a brief look at habits. Habits are a human's optimal form of standardization. Habits are the things we do automatically, without really thinking about them. We all develop habits (and prejudices), because thinking and deciding costs a huge amount of energy; our brains consume large amounts of energy when we learn or create new routines.

How Does A Habit Work?
A certain cue is followed by a particular behavior, and the subsequent reward for this behavior reinforces the behavior itself. The more often the brain uses this sequence, the deeper the behavior becomes ingrained, to the point where the behavior itself becomes more and more automatic. Eventually, the cue ends up being so bound up with the reward that the cue itself will trigger a craving for the reward. When a particular cue triggers a craving directly, then the associated behavior truly becomes a habit. Only when your brain starts expecting the reward, will the behavior become automatic.

For example, when learning to use an IT system that requires action from the user to save data, there will invariably be moments that the user forgets to save and loses data. In the beginning, the user needs to continuously remind himself of the need to save the data from time to time. Loss of data is a particularly strong reminder of the lack of a habit. Over time, saving data on a regular basis becomes an automatic action. The habit is thus created to ensure the user avoid the pain and frustration of rework.

Unfortunately, not all habits are productive or efficient, or a habit may start off being productive but as new methods are discovered, may become less efficient. The problem with these (now) inefficient routines, is that they feel efficient because we do them without needing to think about them. The leader is tasked with identifying when routines (or habits) are no longer efficient.
An example of inefficient behavior is continuing to drag e-mails to their destination folders, because it seems too much of a time investment to learn how to set up rules that automatically sort your incoming e-mail into the correct folders.

The most effective way to alter your habits is to attack the habit loop directly and to replace an old routine that is associated with a certain cue and reward combination, with a new routine. If you want to change a habit, you must first identify the cue that is triggering the routine (this may be anything from a location, a time of day, an emotional state, the presence of certain people, or an immediately preceding action).

Second, identify the reward that the habit is bringing you. This can be tricky, as the reward is sometimes masked among other things. Given the sometimes-obscure nature of the rewards that drive our habits, you may need to experiment with your routine a little, in order to identify precisely what the reward is that is behind your behavior. Avoiding discomfort in learning something new can be its own reward, as in the example of saving or losing data above.

Once you have identified the cue that triggers your habit, and the reward that it brings, it is time to come up with a plan to replace your current habit with a new one. If we keep the same cue and the same reward, a new routine can be inserted. “But that’s not enough. For a habit to stay changed, people must believe change is possible. And most often, that belief only emerges with the help of a group” (Duhigg).

A classic case of changing a habit can be found in every Lean Transformation. Standard team meetings are changed from a traditional form to a Lean form in which visual management supports a one-hour week start and four fifteen-minute day starts. The initial reaction is often not universally positive because a known ritual is changed.

The key comment is that the day starts are a waste of time because having a team of, for example, 10 people standing around for 15 minutes is a classic case of waste. It is important for the team to realize that the 15 minutes replaces or rather prevents a series of bilateral information discussions that occur throughout the day, in which is discussed who is doing what. It is important that the team starts feeling the reward of freeing up time that is currently lost, to do other more productive work. There are always people who see a direct benefit as they were thoroughly bored with the previous form of team meeting. They thought everybody else was happy, and therefore never challenged the status quo.

An important point when instilling new habits is to always give them 60 days to settle. A routine must be done 60 times before the habit can be evaluated as a success or failure. Often people give up the routine after a handful of days, stating that it did not work. This does not mean the routine cannot be adjusted during the 60 days. It is recommended to adjust the routine if it makes achieving the same result more easily.

3.11 Accountability

As we have seen, the act of self-development is something that has far-reaching consequences. Asking a Lean IT Leader to commit to self-development therefore means a conscious decision to take the time to learn. Many managers may think that, having spent years in management roles, they can jump straight to the Ri phase of Lean IT Leadership. This is unlikely to work.

Lean IT Leadership means reviewing the values according to which a leader leads. It means taking the time to analyze the way leadership work is done and, together with others, determining how it can be done with more focus on the real tasks of leadership more efficiently.

Lean IT leaders have not only a responsibility to themselves, but also to their colleagues; they lead by example and that example will influence people. This brings responsibility and, especially, accountability. The key difference between responsibility and accountability, is that accountability means, without necessarily being asked, being prepared to offer an explanation for attitude, behavior and actions.

As Roger Connors, an expert in accountability, says: “Empowerment is something someone does to you. Accountability is something you do to yourself.” Accountability is about looking at what you, personally, can do to achieve goals, overcome obstacles, and actively engage in pursuing results.

In his book “*Drive*”, Daniel Pink reinforces the motivational aspect of accountability. One of the key aspects of motivation is having autonomy, the desire to self-direct. He also stresses that autonomy on its own does not deliver fulfillment and motivation. What gives autonomy its value is accountability. It is proactively telling others what you have done and what results you have achieved that provides the motivational impulse.

What does it look like when someone shows accountability? Let us start by looking at behavior that illustrates a lack of accountability. Typically, this is characterized by finger-pointing, ignoring, or denying that there may be problems, taking a reactive stance (‘wait and see’), and pointing out that a particular task is not part of one’s job.

Accountability behavior is when people take action, take steps to solve problems even if it is only a partial solution or take ownership of a particular subject. In IT, we see engineers being accountable by saying “I will make sure that the network stays working.” For IT leaders, accountability is about ensuring that the team or teams they are responsible for are optimally facilitated to deliver the value they should be delivering.

Ultimately, therefore, self-development is about being accountable for your own attitude, behavior, and actions. It is this accountability that makes others truly believe that you have committed to self-development.

4 Helping Others to Develop

"A leader is best when people barely know he exists, when his work is done, his aim fulfilled, they will say: we did it ourselves." (Lao Tzu)

Both Lean and Level 5 Leadership clearly state that the role of leadership is to develop more leaders, not more followers. Lean IT Leaders create and establish sustainable environments in which future leaders can learn and practice what it means to be a leader. This means ensuring that the environment challenges, but also nurtures, these potential leaders.

Each potential leader must follow the development path, starting with a commitment to self-development. The established Lean IT Leader, having already committed to self-development can help others to find their way on their own path to Lean IT Leadership excellence. In this respect, the established Lean IT Leader is both a role-model and a teacher, in a word: the sensei.

In this capacity, the Lean IT Leader must seek out the people who need to be helped with their development. These people can be found in a particular place: the Gemba, the place where the work is done. The key questions we will deal with in this section are: what does a leader do at the Gemba? And what skills are necessary to be successful at the Gemba?

4.1 Leadership and the Gemba

One of the most succinct descriptions of what a Lean leader does when helping others to develop are the six words of Fujio Cho, Chairman of Toyota: "Go See, Ask Why, Show Respect".

As John Shook stated in his eLetter '*How to Go to the Gemba: Go See, Ask Why, Show Respect*', "Go see, ask why, show respect is the way we turn the philosophy of scientific empiricism into actual behavior". We go to the Gemba to observe what is really happening. We need to ask questions to truly understand what we are seeing. This should all be done in a way that respects the efforts of the people delivering value on a daily basis.

We are, after all, trying to stimulate Lean IT Leaders to exhibit behavior that supports individuals and teams in the delivery of value to customers.

Gemba Walk
When the Lean IT Leader goes to the *Gemba*, they do a *Gemba* walk. This is in marked contrast to a gallery walk. The latter is a walk-around on the work floor that is more about the leaders being seen. The leaders give cursory attention to what is going on and are principally there for their own benefit.

In comparison, a *Gemba* walk is about increasing understanding. The Gemba walk takes time. It is important that the leader encourages teams to use visual management so that the leader can rapidly assimilate the information. This makes the step to understanding the situation much smaller. It is better for the Lean IT Leader to do a Gemba walk every day to ensure that the team does not need to give long (historical) explanations before tackling the problems at hand.
During the *Gemba* walk, the leader must have time to ask questions and truly absorb the answers. An answer will usually lead to further questions to grasp the challenges facing the people on the work floor. A Gemba walk will only be successful if the leader is truly interested in understanding what is going on. This sincere desire is part of their own self-development.
The *Gemba* walk is used by the Lean IT Leader as a method to support the culture, communicate strategy, and develop the engagement of people to the goals.

There are basically three aims when doing a Gemba walk:

1. **Support:** support the employees by removing roadblocks and providing necessary resources
2. **Teach**: if employees are unsure of the strategy, Lean tool usage, controls such as quality, policies or required skills, then take the time to teach. The key is to explain why a certain policy or quality control is in place.
3. **Promote**: promote the True North values, continuous improvement, safety, security, learning organization, teamwork, and so on. Remember: the best method of promoting is being the role model, leading by example.

A Lean IT Leader must "Go See, Ask Why, Show Respect" in order to help others to develop. In the following paragraphs we will discuss how this is done in the daily operation.

4.2 Go See

Genchi Genbutsu is the Toyota principle of '*Go and see*' or seeing reality. It means going to the source and truly seeing what is happening there.

This is where a huge problem lurks. What is reality? We all see the world through our own mental filters. We all interpret what we see. The aim of *genchi genbutsu* is to go to the *Gemba* and observe what is happening without judging. That is, objectively noticing what happens without second-guessing the reason why things happen the way they do or deciding whether this is the right or wrong way to do it.

What Do You Look For?
When a Lean IT Leader goes to the *Gemba*, there is a number of views that he can apply. Each of these views help the leader to look at what is happening in a different way. The leader should decide which view to use prior to going to the *Gemba*. This helps to focus their mind on seeing specific aspects of the organization. The tendency is for leaders to be on the lookout for waste, but there are other views. The idea is to choose different views for a number of Gemba walks. It may help to think of the views as differently tinted glasses: you see the same thing, but you may interpret them differently. We will discuss the five different views below.

1. **Potential View**
   This is the people-focused Gemba walk. In this Gemba walk, the leader is challenged to look for the true potential in others. By objectively observing people at work, the leader can identify skills, knowledge and capabilities within people that have not yet been (fully) recognized.

   By taking this view on your Gemba walk, you may see leadership potential in the interaction between two engineers, presentation capabilities that can help to translate strategy to the work floor or a desire to further develop technical skills that has not been tapped.

2. **Waste View**
   This is the most used view on Gemba walks. Leaders look for waste. The aim is not just to look for waste. The Gemba walk is also about stimulating steps to remove it. This means that "you should do something about that" must be replaced by "let's look at what we can do now to improve the situation." The leader should, together with the people, investigate the waste, measure it on the spot and decide how to eliminate it. This way of working demonstrates the leader's commitment to removing obstacles to the delivery of value.

   Leaders must be particularly vigilant of muri (overburden) and mura (variability). These are forms of quality loss that directly result from choices made by leaders in the IT organization. These are forms of waste over which a leader has control themselves.

For example, long lead times to implement changes may be caused by the policy to have a Change Advisory Board (CAB) meeting once a week, for which changes must be submitted three working days in advance in order to be considered. In effect, this can cause waiting time of between three and eight days. This waste is based on two policy statements: a weekly CAB and a three-day minimum submission period. The challenge is how to reduce or even remove these delays.

3. **Kaizen View**
   This view is about looking for patterns, forms, habits, and routines; in short, being attuned to the kata and how it varies from defined standard work or the lack thereof. The leader must observe work being done and help identify where work can be standardized to improve the quality of the outcome of the process. This will generally mean looking at the value stream map (VSM) together with the people on the work floor.

   From the VSM, both daily Kaizen and improvement Kaizen can be identified. The leader must stimulate the people to pick up daily Kaizen activities and implement small improvements to the process.

   Within IT, one of the areas that needs constant attention is describing standard changes or updating descriptions of standard changes (define and improve the kata). In paying attention to this form of standardization, the leader can stimulate engineers to further improve the ability to rapidly deliver value to customers. The benefit is also that work done by experienced engineers can now be carried out by less experienced engineers without loss of quality.

4. **Problem view**
   The leader who goes to the Gemba with the problem view tends to be looking for the reason something went wrong. As we would expect from someone with a Kaizen mindset, the focus should be on problem-solving, not on 'finding the culprit', even when the latter has become habit in this view.

   The problem view should start with confirming the goals and objectives of the work being done. The leader's key question is "What are you trying to achieve?" Assuming that people at the Gemba can answer this question, the leader can then ask "What is getting in the way of achieving this goal?" If the people are unable to state the goal, then this becomes an opportunity to teach and promote.

   A useful set of topics to use within the Problem View is the branches of an IT **Ishikawa diagram**:
   - **Policy**
     - Which policies prevent the team from achieving the goals?
   - **People**
     - Are there morale issues?
     - Are there problems with availability of skills or knowledge?
     - Are there sufficient or too many resources?
   - **Process**
     - Is the process too complicated?
     - Are there too many different roles involved?
     - Are there too many handovers?
     - Does the process discriminate sufficiently between various types of units of work?
     - Where can the process be further standardized and simplified?
   - **Technology**
     - Does the team have the tools to do their work to the best of their ability?
     - Are there possibilities to further standardize work through automation?
     - Are the available tools used to maximum effect?

5. **Solution view – Try To Avoid!**
   This last view is, in fact, not Lean at all. It is, however, one of the views most used by IT leaders and this explanation serves more as a warning than a recommendation.

   The solution view is the view where leaders go to the Gemba to recommend solutions to problems they see. Everybody within a Lean IT organization is allowed to suggest improvements or solutions to problems, and this also applies to Lean IT Leaders.

   The main issue is that leaders do not spend sufficient time on the Gemba to actually know what the best solution is. The danger is that they jump to conclusions and strongly suggest a particular solution, when the people know that this is probably not the right solution. It is important for the Lean IT Leader to help the team to come to their own solution. (When done respectfully, a leader may pose a solution that they have come up with as a starting point to start discussing the best solution.)

   Where the Lean IT Leader can provide a solution is in applying Lean tools. The aim of applying Lean tools is to help people gain deeper insights into where there is waste (muda), variability (mura) or overburden (muri). In this respect, the Lean IT Leader takes the opportunity to teach and support, rather than tell.

4.3 Ask Why

Having observed activities at the Gemba, a Lean IT Leader must seek to understand why things are done the way they are. This questioning is not necessarily only for the benefit of the leader. In searching for the underlying details of a particular situation, the Lean IT Leader helps the engineers to better understand the situation, to challenge the current way of doing things, to look for root causes to problems and to find ways around impediments.

Apply 5-Whys
The 5-Why analysis is a simple root cause analysis that aims to question a situation through sequential causes. 'Why' is asked to find each preceding trigger until we arrive at the root cause of a problem. When using 5 whys during a Gemba walk, it is useful to ask the question 'Where?' three times before starting the five whys. The where questions allows us to pinpoint the specific location of the problem so that we can go and observe what is actually going on.

It is vital NOT to ask "Who?" This implies that a person is to blame. The Lean IT Leader must always assume that the error or lack of quality is the result of an error in the organizational system (policy, process and technology). Even if it turns out that someone has not followed an agreed procedure, the Lean IT Leader must understand what issue in the 'system' allowed this to happen; which oversight caused a person to not use the agreed procedure?

A well-known case of this problem is updating the Configuration Management Database (CMDB). Everybody knows that keeping the CMDB up to date is critical for consistently delivering value to customers. It ensures that we can fully understand the impact of a change or that we can investigate a problem more easily. And yet, getting IT people to update the information as a result of changes, is a major issue for many IT organizations.

A Why question can often be answered with multiple answers. Each answer should be supported by evidence that proves the answer is right. Failure to do this may send the team on a wrong failure path.

Step	Description
Step 1	Determine the exact location of the problem by asking “Where? three times to identify where the problem takes place.
Step 2	Make a table with two columns and five rows and write the question from the problem statement at the top of the table
Step 3	Ask the question: “Why did this happen?” Find the answer, supported by evidence, and write the answer in the left-hand column of the top row.
Step 4	Repeat this question-and-answer cycle, four more times. List the answers in the left-hand column of the table.
Step 5	Determine a solution for each of the answers and record these in the right-hand column.

Table 3: Five steps to perform a five times why analysis.

An aspect to keep in mind when asking why, is one of communication. ‘Why’ is a word that, depending on intonation, can have an inspiring and investigative character or a threatening character. Leaders should, of course, try to be inspiring and investigative.

Having gone to see, now standing at the Gemba, how do we go about understanding or analyzing the technical or process side of understanding the Gemba-as-system?

4.4 Show Respect

As one of the core values of Lean, showing respect is something that Lean IT Leaders need to make concrete and tangible. What can you do to show respect?

Respect is a way of treating others and thinking about others that shows that you regard them highly. We show respect by being kind and polite to people, by showing empathy and by abstaining from discriminating in any way. Other ways to show respect include showing gratitude for what others do, respecting their abilities and complimenting their achievements. It is important to be sincere, to genuinely believe what you are saying. As a leader with many demands on your time, it is also respectful to others to say what you will do, to do what you say you will do, and also to offer help.

When you go to the Gemba, you will undoubtedly hear others’ opinions. Listen to what is being said, ask questions and try to understand the other’s perspectives. If you disagree, then you should voice your opinion without using insulting language. You should also investigate why the other person holds to their opinion. Respect also means avoiding unnecessary arguments and apologizing if you were wrong. However, you should not shy away from confrontation since that can be a mark of disrespect.

The key to respecting people is to refrain from judging them; give people the benefit of the doubt. There are very few people who come to their work with the express intention of doing things wrong or delivering poor quality. Work from the premise that intentions are good.
Lastly, a leader has a position of power that can easily be abused; this should be avoided at all costs.

One way that leaders show respect within a Lean organization is through the process of participative decision-making, or **Nemawashi**. This is the informal process of laying the foundation for a decision, change or project. Nemawashi is not a democratic process, since not everyone needs to agree. However, seeking the opinions of others is a mark of respect even if the person does not agree. The important thing is that people are informed and aware of what is coming. Nemawashi is about consulting, discussing, and adjusting proposals, and it also means taking action.

4.5 IT Gemba

We have discussed what needs to be done at the Gemba. The question is: what does the IT Gemba look like?

If we take a bird's eye view of an IT organization, we can identify four distinct parts of the IT Gemba: the software development Gemba, the service desk Gemba, the IT operations Gemba and the supporting staff Gemba. These each have their own characteristics.

Software Development
This part of the IT Gemba is made up of people principally working on changes to IT services or creating new IT services. They are strongly deliverable-oriented. Creating these deliverables will entail both individual work and project-based teamwork. These people tend not to work on production systems, and generally see the resolution of an incident on a production system as a disruption to their workflow. The focus of this Gemba is to create high quality deliverables that meet the needs of the customer. What will you see at this Gemba? Individuals working on various phases of the software development process (designing, coding, testing). An effective development Gemba must include small teams of people working together. Software developers tend to use different tools than the rest of the IT organization. However, they should also use the IT organization's 'Enterprise Resource Planning' (ERP) system, which is the service management tool.

Service Desk
The service desk tends to be the most dynamic part of the IT Gemba. You will see many people on the phone talking to customers about their issues when using the IT services. These people have the most intense contact with customers and are focused on meeting the customers' expectations. They are interested in the status of the IT services in production. Depending on the responsibilities of the service desk, part of the team may be carrying out standard changes. The service desk Gemba can be hectic when a major incident hits the IT services. The primary tool used by the service desk is the service management tool and their focus is on ensuring that incidents, service requests and standard changes are executed as quickly as possible.

IT Operations/Service Delivery
This is the production Gemba; the place where IT services are operated and supported. This may be split into various technology-oriented teams that together encompass the IT production Gemba. This is what makes the IT Gemba a difficult place to interpret. Different parts of the delivery of IT services take place in different departments. The most obvious part of the IT operations Gemba is the data center. Here we find the machines running the various environments. We find relatively few people here. Most of the people working at the IT operations Gemba can be found in their respective (technology-oriented) team rooms. Ultimately this means that the people running a particular IT service may be dotted throughout the IT organization, increasing the difficulty of actually understanding what is going on. To complicate matters, there may also be an overlap between these teams and the software development Gemba, in that people from IT operations may be involved in software development projects, or developers may be required for solving incidents and problems in the operation. The IT operations Gemba is a highly process-oriented environment in which standards are very important, and the focus is on ensuring the right capabilities (both technological and people).

Supporting Staff
Throughout the IT organization, there are people that do not directly work on producing or operating IT services but are nonetheless vital for the flow of IT processes. These people are focused on ensuring that policy is created, implemented, and followed. There is a high level of expertise in these roles. The supporting staff Gemba is essentially made up of coordination roles, both technological and managerial. The supporting staff coordinate processes, projects, architecture, and teams. An example is the role of IT architect. They are often responsible for creating Project Start Architectures that are needed to identify the risks involved with a large change or project. In this respect, they have a direct impact on the ability of the IT organization as a whole to deliver

value on time. In traditional IT organizations organized in technology siloes, there will be roles in place focused on ensuring the coordination of the technologies into a coherent and functioning service to the customer. When looking at this Gemba, it is vital to understand what is being coordinated and how this is being done.

These four basic forms of IT Gemba have a tendency to overlap. The role of the Lean IT Leader is to ensure that the different focuses are brought together with the aim of producing high quality IT services that meet the expectations of the internal and external customers of IT.

4.6 Skills and Knowledge

When it comes to helping others to develop, we have seen that we need to go to the Gemba and show respect. We use visual management and performance dialogs (see Chapter 6) to create an environment in which people can develop. The core of development is, of course, the acquisition and improvement of knowledge and skills.

The availability of the right level of skills and knowledge is a pre-condition for delivering the value that customers need. If an IT organization does not have access to the skills and knowledge it needs to create, deliver and support the products and service it sells, then it will never be successful. The basis for delivering IT services is, therefore, understanding whether there are sufficient skills and knowledge available in the IT organization

Knowledge
This is the technical theoretical understanding and practical know-how that team members have regarding the components used by the team in the course of delivering customer value. Within IT organizations, it is vital to ensure that everyone continuously works to improve and update their knowledge. As we saw, the technological developments within IT are so rapid that standing still in knowledge development presents IT organizations with a huge issue. In practice, specialists on a specific topic tend to be kept in their area of expertise for too long. Eventually, technology is superseded by newer technology. As long as the specialist is maintained on the 'legacy' technology, he will not develop new skills and will become obsolete. It is vital that leaders provide IT people with the opportunities to progress to newer technologies.

Skills
These are the demonstration of knowledge-based practice, resulting from learned abilities, and required to be successful in the IT team. Skills may include such aspects as analytical abilities and ability to work under time pressure, but also customer orientation. Leaders must focus on identifying and developing the most important skills, usually focusing on a maximum of ten skills is enough.

Analyzing Skills and Knowledge
As a Lean IT Leader, it is your responsibility to facilitate teams of IT people to execute the work necessary for customers, and thereby, to remove barriers to this value delivery process. An imbalance in the skills and knowledge available is a prominent cause of mura (variability) in IT organizations. The question for the leader is whether policy choices are the root cause of the imbalance. In this case, the Lean IT Leader must work to remove the muri (overburden) as well. There is a need for the Lean IT Leader to analyze the need for and availability of skills and knowledge. This can be done using a simple spreadsheet model.

		Alfa Beta																														
	Skills L = Learning A = Applying E = Expert D = Directing	Lean Knowledge								IT				Engagement							Sales				Basics							
Resource Name	Function	History of Lean and Quality approaches	Customer Dimension	Process Dimension	Organization Dimension	Performance Demension	Attitude & Behavior Dimension	Apply the Lean tools	Data analysis work	IT Management	IT Service Management	Software Dev (DevOps, Scrum)	IT Operations	Lead a Lean Transformation Programme	Lead a Leaderships program	Coach Senior Managers	Coach Lean Coaches	Programme Delivery	Project Delivery	Engagement Delivery	Leading Sales support role	Identify sales opportunities	Write Proposals	Support Sales with content	Apply Value Selling	Apply the Pyramid Principle	Apply Problem Solving	Writing professional slides	Feedback skills	Leading workshops and Presentation skills	Stakeholder management	Total count per resource
a																																0
b		E	E	A	D	D	D	E	A	A	E	E	E	E	E	E	D	A	E	E	A	E	A	E	A	D	D	E	E	D	E	21
c		D	A	E	A	E	D	D	E	E	E	E	E	E	E	E	D	E	E	E	A	A	A	A	L	A	A	A	E	D	A	21
d		D	D	D	D	D	E	E	D	E	A	E	A	E	E	E	D	E	D	D	E	A	E	E	L	E	D	D	E	E	E	34
e		A					A	L	L	L	L	L	L										L			A	L	A	L	L	L	12
f		L	L	L	L	L	A	L		A	A		A						E	E			A	A		A	A	A	E	A	E	12
g		A	E	E	E	E	A	E	D	E	E		A		L	A	E	A	A	A		L	L			D	E	E	E	A	A	21
H		A	A	A	A	E	A	E	A	A	A	A	A	A	A	A	E	A	E	E	L	A	A	A	L	A	A	E	A	A	A	25

Figure 4: Example of a Skills and Knowledge matrix

Step	Action
Step 1	Identify which skills and knowledge are required. It is advisable to create a spreadsheet for knowledge and a separate one for skills.
Step 2	Determine which skills and knowledge are required by the various roles in the team. It is important to be complete in this section, without subdividing technical areas into unworkably small units. However, there may be more than 20 knowledge areas.
Step 3	Based on the workload (i.e. numbers of each unit of work) received by the team, the necessary capacity and level of knowledge and skills can be determined. This is scored using a 5 level ability scoring scale based on a person's ability in a certain area. The scale is: ● **None**: no relevant knowledge in the specific area ● **Learning**: the person works in this area, has some knowledge and experience but needs guidance ● **Applying**: the person has sufficient theoretical knowledge and practical experience, masters most of this area. ● **Expert**: the person has much experience, can teach others, and advises regarding this area. ● **Directing**: the person influences the team and the content. Demonstrates deep knowledge and has vision and ideas.
Step 4	Each member of the team scores his/herself on the various knowledge and skills areas independently. The team leader completes the matrix as well. Note: When scoring skills, it is important to be aware that the perception of ability in skills is (generally speaking) more subjective than perception of knowledge.
Step 5	Follow up with a short interview of each team member to validate the scores.
Step 6	Combine all input into a single team sheet and share the overall results with the whole team.

Table 4: Six steps to perform a Skills & Knowledge analysis

The aim is to identify the gaps (and excesses) between the ideal team composition based on the analysis of customer requirements of the team. Together with the team, the leader must determine whether sufficient knowledge and skills are present in the team to ensure the team can deliver the required customer value.

In most cases, there will be discrepancies between the available and required skills and knowledge. The Lean IT Leader must challenge the team to initiate improvements where necessary. The skills and knowledge analysis helps to provide a record of the state of the team, and all work done to share and acquire knowledge must be recorded in the skills and knowledge analysis, through a regular update of the analysis.

In a relatively immature IT organization, the analysis will uncover the fact that one person is at expert level, most of the rest will be at the 'no knowledge' level, with one or two people being at the 'learning' level. This is a clear case of the imbalance of the availability of knowledge, and the team must work to remedy the situation.

When defining the knowledge required by the team, everyone must be involved. The result is a tailored list of knowledge per team. Leaders should share their knowledge analyses to see whether there is untapped potential in other teams.

4.7 Development Skills of the Lean IT Leader

IT is well-known as an environment in which the best technical expert is promoted to manager of a team. This way of working is intuitively correct, but its execution is fraught with problems if the new leader is not helped to develop Lean IT Leadership skills.

People in technical functions are often specialists in their subject and not necessarily specialists in leadership. This gap between the skills needed and the skills already possessed must be remedied before the leader starts their new position (see also the section on the Challenge of Self-Development). Every person that is selected for a leadership position has a duty to investigate their own skill gap.

The combination of deep understanding of a technical area supplemented by broad knowledge of leadership and IT service delivery is known as T-type leadership. A T-type leader gains depth of understanding and experience in a particular technical area (the long stem of the T) and then broadens out to gain exposure across the organization (the top horizontal part of the T).

The challenge is to build leadership skills onto the technical competencies. Putting new leaders into positions outside their areas of expertise, forces them to listen and coach, as they are no longer the technical experts. This helps to develop their skills at motivating people and building teams.

In developing others, the role of a leader, especially those at higher levels, is twofold:

- To coach high-potential leaders as they develop the roots of a technical specialty, and
- To find the right mix of opportunities that will enable a select group of high-potential employees to develop into T-Type leaders who can make a positive impact anywhere in the IT organization.

This is where many IT organizations have failed in their development of a pipeline of high-quality leadership potential.

On top of providing the aim (T-type leadership) and the opportunity to develop, in essence, we see that a Lean IT Leader needs four key skills to help others develop:

1. **See and analyze**: The Lean IT Leader must be able to identify muri, mura and muda at the IT *Gemba*, and must particularly help others to do the same. Skills necessary to be successful are questioning and listening.
2. **Clarify your thinking for others**: It is critical for the Lean IT Leader to be able to explain why certain choices have been made. The key component skills here are analyzing, synthesizing, summarizing and visualizing. These are the core skills necessary for A3 thinking (see Appendix: A3 Thinking).
3. **Explain expectations and accountability**: Using visual management to align and communicate goals, the Lean IT Leader must make clear what is expected and who is accountable for which results.

4. **Challenge and guide**: last, but certainly not least, the Lean IT Leader must challenge people to achieve a higher level of performance. The danger is that they will take over and start thinking for the people at the *Gemba*. The Lean IT Leader must use effective performance dialogs to guide the people.

These skills must, of course, all be carried out with respect.

By never becoming complacent and always seeking to improve, Lean IT Leaders will be ready to overcome any challenges they may face in the future.

5 Continuous Improvement

"Good management is the art of making problems so interesting and their solutions so constructive that everyone wants to get to work and deal with them." (Paul Hawken)

To this point, we have looked at Lean leadership in general, the context of IT, the steps to committing to self-development and helping others to develop. These steps come together in the cause of ensuring continuous improvement. This is, after all, the ultimate goal of Lean: to keep improving the level of value delivered to customers.

One of the key characteristics of IT is that it is a team 'sport'. Individuals do great things, but customers get great IT services through the cooperation of people in teams to deliver the required IT services.

When it comes to continuous improvement within IT organizations, it is therefore critical that Lean IT Leaders ensure that this is done within teams.

Continuous improvement starts at the team level, where the value-added work is done. It is possible only if people across the organization continually check their progress relative to goals and take corrective actions to address problems they come across while trying to achieve these goals.

Lean IT team leaders tend to start as team members and rise by being able to perform all of the team's tasks at a high level. They must also work on Kaizen projects meaning they are focused on structured and disciplined problem-solving, and follow voluntary team leader skills training (i.e. demonstrate the will to self-develop).

It is, thus, hugely important to cultivate strong team leaders and allow them, and their teams, to have ownership of their area and its strengths and problems. In fact, experience has shown that insufficient attention to the first level of management and leadership in the IT organization can be the cause of poor service delivery. Team leaders represent the most critical coordination layer within the IT organization.

We must therefore pay attention to their team-building and team-leading abilities.

5.1 Teams

As we saw earlier, the traditional form of IT organizations is a set of technically-oriented "teams" doing their part of delivering the IT services. The word 'team' is used quite easily to define a group of technical people working together.

In their 1993 article, Katzenbach and Smith clearly define a team as: "a team is a small number of people with complementary skills who are committed to a common purpose, set of performance goals, and approach for which they hold themselves mutually accountable."

The table below shows how Katzenbach and Smith propose to identify the difference between a team and a group.

Group	Team
Strong clearly focused leader	Shared leadership roles
Individual accountability	Individual and mutual accountability
Purpose is the same as the broader organization mission	Specific team purpose that the team itself delivers
Individual work products	Collective work products
Run efficient meetings	Encourages open-ended discussion and active problem-solving meetings
Measures its effectiveness indirectly by its influence on others	Measures performance directly by assessing collective work products
Discusses, decides and delegates	Discusses, decides and does real work together

Table 5: What distinguishes a team from a group based on Katzenbach & Smith (2004). The discipline of teams

Teams and groups are very recognizable within IT organizations.

For example, in a large IT organization, there is a team of database experts. These engineers ensure that all of the databases are managed in such a way that the data is always available for use by the respective applications that need the data. This set of database experts is referred to as the “Database Team”. At closer quarters, we see that this so-called team is, at best, a group. At worst, a collection of technical experts who happen to work on similar technology.

The business applications use four different types of databases. The ten database administrators have been allocated to the different technologies and there is some overlap. The database technologies are so different at a detailed level that generic database knowledge will only take a database administrator unfamiliar with a certain technology a little way. On a daily basis, we find that most of the database experts are at meetings with project teams or other teams supporting applications for the customer.

Referring to the table above, we see that the “Database Team” fails to meet almost all of the team criteria. Some effort has been made by the manager of the group to introduce individual and mutual accountability, to define some collective work products and to introduce collective problem-solving.

These actions were met with skepticism by the database experts, as they realized that they were not a team. In fact, most of them felt more attached to the application teams they supported. And this is logical because together with the application specialists, the database experts had a collective work product, a working application. They also had better problem-solving sessions with their ‘surrogate’ teams and found a clear and specific purpose for their expertise.

5.2 Teams in IT

The average IT employee may work in a number of teams on a daily basis. It is therefore vital that every leader develops team-building skills. Within IT organizations, teams are formed along four lines:

- **Technical team**: this is the traditional form of team within IT. These are, in fact, groups as described in the example above. The people in the team are all responsible for a similar part of the software or hardware
- **Project team**: this is another form of team that has existed for a long time within IT. Project teams are assembled to create new products and services, or simply to carry out large chunks of work. This is usually a virtual team with people drawn in from throughout the IT organization

- **Service-oriented team**: this may be a virtual or an actual team. This type of team is responsible for ensuring that one or more IT services are delivered seamlessly. All of the skills required to deliver the service are represented in the team
- **Customer-oriented team**: like the service-oriented team, this team may be virtual or actual. This team is focused on managing and/or delivering the services for a specific customer

In general, the last three may be teams complying with the definition of teams presented earlier. The first is generally not a team.

Recently, DevOps has risen in prominence as a way of organizing IT organizations. The intent is to bring together everyone who is required to manage the full lifecycle of a customer's IT service(s). This means bringing together IT operations experts, software developers, some of the supporting roles and, in some cases, even the service desk capability. In this way of working, we see that a concerted effort has been made to create a true team that complies with the definition above. Where DevOps has been implemented with this team-based thinking in mind, we find substantial improvements in performance. As Katzenbach and Smith say: "Performance is the cause and effect of teams."

IT teams, facilitated by Lean IT Leaders using Lean tools, can create a huge difference to customers.

We saw that one of the units of work within IT is the non-standard change or project. This unit of work invariably requires multiple disciplines. IT organizations understand intuitively that the multi-disciplinary team is the best way to achieve success.

5.3 Building Teams

A (Lean) team is more than just a collection of individuals. A few prerequisites have to be in place in order for individuals to function as a Lean team:

1. **The team leader plays a crucial role**
   The team leader is of vital importance in enabling effective teamwork. Team leaders can have a positive influence on behavior and a team's social climate, they can create a safe environment. One of the key skills of a team leader is, therefore, creating a functioning team, preferably a high-performance team. This is an integral part of Lean IT Leadership.

   In his book *The Five Dysfunctions of a Team* (2003), Lencioni describes a number of characteristics of highly functional teams. These are compatible with the team definition as created by Katzenbach and Smith.

   Highly functional teams contain individuals who have a **high level of trust** in one another. They operate in a safe environment, meaning that they are free to speak their mind without fear of reprisals.

   They engage in discussions regarding their ideas with the aim of improving the quality of these ideas. In this respect, they seek **conflict** with one another as a way to sharpen the thought process and its results.

   Team members **commit** to decisions and plans of action, and hold each other accountable for achieving the goals. This means that once choices have been made, even if a team member was not completely convinced of the choice, they still commit to helping the team to achieve the goals.

   Lastly, the team members focus on the **collective results** of the team, rather than the results of individuals.

These steps of team development all contribute to the key Lean behavior of continuous improvement. They are incremental and each step builds upon the previous step. If trust is not in place in the team, there is no advancement to improvement through conflict.

2. **Teamwork Starts With Trust**
   Trust starts with the fact that people feel safe to show their vulnerability. A Lean IT Leader can encourage this behavior by being an example. Showing vulnerability means being open about aspects of work that the leader finds difficult or challenging.

   An important aspect of vulnerably is admitting to making mistakes. It does not mean that the leader must burden the team with all of the doubts, fears and emotions that the leader may have; it just means not covering up issues that occur.

   Trust is the starting point of learning to develop. If there is trust and safety, team members will be more likely to be prepared to take calculated risks. Taking risks is what helps the team to take improvement steps beyond what is known.

3. **Improve Through Conflict**
   The next step seems paradoxical: Lean IT Leaders encourage conflict. The type of conflict they encourage is the positive exchange and discussion of ideas in order to make the ideas better.

   Many IT leaders are reluctant to let team members have conflicts, because they feel that it destroys harmony within the team. The leader's role is to ensure that the conflict remains constructive. Leaders must refrain from intervening, even when the team's first reaction may be to look to the leader to solve the conflict.

   Lean IT Leaders encourage team members to have faith that solutions will come during the process; show trust even when the conflict is heated. The Lean IT Leader leads by example and must be able show constructive behavior in showing team members how to rebound from the challenges and conflicts.

4. **Commitment To Each Other**
   A team that shows commitment is clear on the goals, targets and priorities of the team. Commitment is not a democratic process to achieve consensus: commitment is a choice. The team knows that seeking consensus does not help them; they seek constructive conflict to get to a point where each team member understands the goals and chooses to help the others in the team to achieve these goals. The Lean IT Leader creates a trusting environment by being transparent about decisions and actions; visual management helps to achieve this transparency.

   A good example of where the Lean IT Leader can practice the first three characteristics of team is in problem-solving. There needs to be openness about the existence of problems. Then the leader encourages team members to engage in a constructive conflict about how to solve it. The discussion should end with an agreed solution. Finally, the team commits to the solution and pursues action.

5. **Accountability**
   Team members motivate each other to excel in their tasks by setting standards. This happens with guidance and encouragement of the leader. However, the team is able to *sustain* this behavior even without the constant presence of the leader. The team is able to address non-performance.

   Addressing non-performance within the team is one of the forms of conflict that may take place. In the previous levels of team behavior, the team has learned how to discuss this kind of issue. There is trust that team members do not cause damage to one another, they

have learned to manage conflict, and they have committed to each other and to the common goals.

The Lean IT Leader ensures progress meetings are held and that necessary discussions take place. The Lean IT Leader rewards the team's results with team rewards. A reward system supports the creation of a spirit of team responsibility.

6. **Goal-Sharing**
   When teams have mastered the previous levels, the Lean IT Leader encourages the team to present and communicate their desired results. The focus shifts from the results to the appreciation of the behavior that contributes to the team targets and results.

   The leader must become more severe with team members who demonstrate non-Lean behaviors, like pursuing self-status or individual advancement, because this behavior starts hindering the entire team.

   Up to this level, there is still a focus on the individual contributions to the team and that these are aligned to the team goals. A good leader recognizes the individual contributions, so that she can efficiently praise and encourage Lean behavior of each team member.

   With goal-sharing, the leader challenges the team by focusing on the collective goals and letting the team determine how these goals will be achieved and who will do what work.

5.4 Kaizen Mindset

As described in the EXIN Handbook Lean IT Foundation, Lean is a way of thinking and acting. We will be discussing how to successfully introduce and execute Kaizen within an IT organization. At each step, we will discuss critical 'thinking' aspects.

Before we can start, we must investigate the starting point of Kaizen: developing a Kaizen mindset. What do we mean by this? We mean that there must be a belief throughout the IT organization, both among managers and employees, that improving IT services and the way they are delivered can and must be done on a daily basis.

So what are the core elements of a Kaizen mindset?

1. **Seeing and prioritizing problems**: Are both managers and employees truly prepared to uncover problems, accept them as a part of daily life and initiate action to identify the problems that most need solving?
2. **Solving problems**: Are both managers and employees prepared to invest time and other resources to understand the root causes of problems and resolve problems completely?
3. **Sharing lessons learned**: Are both managers and employees driven to share the lessons learned as a result of solving problems with others in the IT organization, so that they may benefit from the lessons learned?

It is important to note at this point that Problem Solving is not about reactively waiting for problems to appear and then resolving them as they occur. A problem-solving mindset is to first establish a desired state for the service and or process, understand the current baseline and gap and to incrementally close the gaps towards the desired state through Kaizen improvement steps. The essence is that identifying problems and solving their root causes drives individual and organizational learning.

5.5 Continuous Improvement: Kaizen

There are, in fact, two types of Kaizen: Daily Kaizen and Improvement Kaizen
We will focus on Daily Kaizen in this handbook, and we will only briefly discuss Improvement Kaizen. Improvement Kaizen is focused on carrying out Kaizen events to bring about incremental change. Improvement Kaizen is discussed in detail in the EXIN Handbook Lean IT Kaizen.

Daily Kaizen
Daily Kaizen is more closely related to the Kaizen mindset because it means continuously looking at the environment in which we operate and changing things to make it easier for the people in this environment to deliver more customer value, more quickly and more consistently. Why is daily Kaizen more closely related to the Kaizen mindset? Because daily Kaizen means being constantly alert to minor (and major) issues that need to be addressed directly and quickly.

Daily Kaizen is where the Lean IT Leader must prove their value. When something needs to be done on a daily basis, it can become part of the routines and habits. It may even be forgotten, with the comment that the team will pay attention to it the following day, week, year and so on.

A simple example of daily Kaizen is the following. Imagine a printer on a table. The paper for the printer is stacked in boxes, each containing five packs of paper, under the table. The result is that whenever the paper drawer is empty, someone must bend under the table to get a pack of paper out of a box. A daily Kaizen action would be to mark out a rectangle the size of a piece of paper with red tape on the table next to the printer. A box of paper is placed on the rectangle. When the last pack of paper is used and the box is discarded, the red tape will signal that a new box of paper needs to be put on the table. This simple example means that most people will not need to bend anymore to get paper for the printer's paper drawer. Since this makes life more pleasant for everyone for a substantial length of time, we can see this as a small improvement, and thus as an example of daily Kaizen.

What does this mean for the daily practice of the Lean IT Leader? Daily Kaizen means being alert and observant. It means knowing the standards and understanding when they are not being met. The aim of the Lean IT Leader is to ensure action is taken to meet the standard, or better still: to improve it.

In the Leader Standard Work of a Lean IT Leader, we may find on an average day that the leader attends two day starts, has reserved an hour for a Gemba walk and an hour for specific team coaching of perhaps a project team. Each of these planned activities provides the Lean IT Leader with the opportunity to observe how work is being done.

Experience has shown that in each of these occurrences, people will voice concerns or highlight issues. The Lean IT Leader must listen carefully to understand the problems and ask how these problems could be solved in a 'small' and simple way. Solutions like making a checklist, creating a written definition or sketching out a process (using the SIPOC technique) may help to alleviate the problem for all involved. *The Lean IT Leader must ensure that the proposed action is carried out that day*. The team must become accustomed to tackling small problems instantly. This is the essence of daily Kaizen.

Daily Kaizen requires that the Lean IT Leader goes to the Gemba, understands the standards, and stimulates immediate action to resolve issues.

Improvement Kaizen
In the course of doing daily Kaizen, a team may come across a problem for which no one really knows the best solution, even a small step to alleviate the problem. The Lean IT Leader must then facilitate the resolution of the problem through a Kaizen event, or improvement Kaizen.

Improvement Kaizen is the most popular and visible form of Kaizen within IT. Simply said: Improvement Kaizen is about bringing together a group of people who have an interest in having a particular problem solved and getting them to solve this problem. Improvement Kaizen does have the drawback of requiring a substantial time investment and the results may not always be as successful as desired.

This sounds simple but this generally requires some organization and management to ensure that the right people are involved, and right things happen.

Prevalence of Both Types of Kaizen
Both types of Kaizen (Daily and Improvement) must be present in an IT organization to be able for it to say it is continuously improving. And the Lean IT Leader plays a key role in stimulating teams to continuously improve.

One of the most heard complaints about IT from both customers and employees is that IT only focuses on firefighting. This is the best reason to shift the focus to integrating continuous improvement into the way of working for the leadership of the IT organization.

Firefighting essentially means that symptoms are addressed and mitigated on a temporary or one-off basis. However, time is not spent on establishing the root cause and implementing a permanent solution with controls to ensure that the benefit continues to be realized. This means that there is a high risk of repeating the error, which leads to more short-term time investment in firefighting. In short, there is no evidence of long-term improvement. In fact, it is highly likely that all fire-fighting time added up exceeds the time that would have been spent fixing the root causes.

Lean IT Leaders must consciously choose to direct team effort towards solving problems through both daily and improvement Kaizen.

5.6 Improving Flow

In the past, IT organizations have spent much effort implementing and improving the IT service management processes. The key to improving IT processes is to improve two aspects:

- The quality of the output
- The flow of the process

These two topics are essentially the starting point for any step in continuous improvement.
IT organizations have traditionally been seen largely as cost centers. The consequence of this way of thinking, is that enterprises have a primary aim to use this expensive resource as efficiently as possible, which usually translates to: ensure that the 'expensive' IT people are filled with work.

This way of thinking has caused non-Lean IT Leaders to steer the IT organization on maximum resource usage. However, Lean Leadership understands that overburdened resources are a form of waste (muri). Resources that have too much work in progress, will spend little to no time focused on improvement or innovation. The result is that there is less focus on the needs of the customer, which leads to lower customer value on a long-term basis.

Lean thinking challenges IT leaders to look at the ability of the IT organization to deliver the required customer value as efficiently as possible, within the context of work in progress limits (WIP Limits). Efficiency, in this case, is not that the IT employee is optimally filled with work, but that the unit of work is processed through the IT organization in the most efficient way. This is known as **flow efficiency**. The challenge to optimize flow efficiency is the high-level problem that all IT leaders must aim to resolve. Once this problem – achieving flow efficiency – has been solved, then (and only then) the focus can return to optimizing resource usage within a flow-efficient context.

The Lean IT Leader must help IT teams to unclutter their work environments. Both the physical and the virtual work environments should be uncluttered. Clean desk policies and flexible workplaces have had their effect on keeping the physical environment neat. The problem is the digital work environment, because it is an 'invisible' problem. However, the virtual work environment concerns all the units of work recorded in the IT service management tooling.

Using the 5S technique in the virtual environment offers a unique challenge, simply because everything looks neatly sorted in computer systems. On closer inspection, the Lean IT Leader usually can help teams to create a more orderly work environment.

The **5S technique** was explained in the EXIN Handbook Lean IT Foundation. In summary:

- **Sort** is about eliminating all unnecessary tools, parts, and instructions.
- **Simplify** or **Set in Order** ensures that everything has a right place.
- **Shine** is very simply about keeping the workspace and all equipment clean, ordered and in the right place.
- **Standardize** means defining the best way of executing an activity.
- **Sustain** means maintaining and reviewing standards.

Investigating each of these aspects in relation to each process step can help to ensure that processes become more efficient through simple improvements.

Carrying out each of these activities requires translation to the virtual environment. In the IT context, sorting, simplifying, and shining can all be used, for example, to describe the removal of the often-excessive amount of resolver groups in an IT service management tool. These tools tend to survive multiple re-organizations but end up having both the new resolver group names and the old ones, possibly even the ones before the recent re-organization. These old resolver groups survive because old units of work remain open. Lean IT Leaders must ensure that the actions to unclutter the work environment are carried out promptly. These are part of daily Kaizen.

As has been stated a number of times, standardization is something that is *absolutely vital* for IT organizations and teams. There is a well-known flow regarding changes within IT:

- The first time we do something, it is a project
- With some experience, it becomes a non-standard change
- As capabilities (both technical and human) improve, it is turned into a standard change
- Then we automate it

Mostly this process is more or less accidental. The Lean IT Leader stimulates this process purposefully to ensure that the amount of time spent on the activity is reduced to a minimum. And once again, the day-to-day activities of going through this process are all part of daily Kaizen.

Finally, the Lean IT Leader's responsibility to encourage continuous improvement on a daily basis can be summarized by the following steps:

- **Understand daily Kaizen in the context of IT**. Develop the Kaizen mindset and develop deep understanding of how to stimulate improvements, by knowing the reasons for improvement and the key sources of improvement candidates, for instance increasing flow efficiency
- **Help teams to develop** by instituting routines based on standard work which enable the Shu-Ha-Ri principle and the use of Kata. Ensure that standards are created, monitor whether the standards are met, identify improvements in the standards and ensure daily *and* improvement Kaizen to resolve problems
- **Ensure that routines become habits**. Create positive feedback loops that encourage people to carry out daily Kaizen as part of their daily routine. Turn this action into a habit by reviewing performance at each day start
- **Support Daily Kaizen**. The Lean IT Leader is responsible for injecting new energy into the team. Without additional energy, the team will eventually fall into a state in which improvements are not continuously sought

6 Vision, Goals and Communication

"Vision is the art of seeing what is invisible to others." (Jonathan Swift)

We have looked at committing to self-development, helping others to develop and the importance of Continuous Improvement. The fourth area that the Lean IT Leader must master is creating a vision and aligning the goals within the IT organization. In doing this, a Lean IT Leader becomes responsible for communicating the vision and goals. Where the communication required in the other aspects largely consisted of motivating, teaching, and supporting, the communication in this area involves creating a consistent story.

6.1 Creating Vision

As we discussed in chapter 1, the IT organization exists in a context, and broadly speaking this context provides the fundamentals for the vision of the IT organization. There are basically two types of IT organizations:

1. The IT organization operating **within an enterprise**, providing a wide range of IT services to that enterprise
2. The IT organization **as its own enterprise** providing specific services to a variety of customers

In relation to the activity of creating a vision, we shall refer to the former as an internal IT organization and the latter as an external IT organization.

For an internal IT organization, the vision will necessarily be intricately related to the vision of the entire enterprise. Somewhere in the vision statement will be the sentence "our vision is to provide excellent IT services to [insert name of your own company]" or something similar.

Many of the subsequent choices and goals will be dictated by the vision and strategy of the enterprise. The one area where the IT organization should be free to make choices is in the technology used to provide the IT services. This is where the expertise of the IT organization comes into its own.

For an external IT organization, the vision contains more degrees of freedom. The external IT organization can define its preferred customer segment, the services it wishes to provide and the way in which it aims to deliver the services. In the market, we can identify:

- IT organizations that provide **software**, with our without direct support (i.e. some deliver support through partners or through the internal IT organizations)
- IT organizations providing **hardware**, again with or without direct supporting services
- IT organizations that act as **integrators of services** provided by hardware and software providers
- IT organizations that provide **services and support** to help make better use software and hardware

Each of these types of IT organizations will develop a different type of vision.

Interestingly, Lean always stresses the focus on long-term goals. Long term means 5 to 10 years, sometimes longer. Here, we meet a difficulty within IT. The sector and its capabilities have changed (evolved and revolved) so quickly over the past 25 years that predicting where an IT organization will be in ten years is almost impossible. Especially for the commercial IT organizations, a revolution in IT may signal their demise or an almost inconceivable growth.

For the internal IT organizations, the vision is somewhat more predictable, given that the enterprise itself continues to thrive.

It is for this reason that we base the vision on our True North principles (or on the guiding principles from the Shingo Model). We can turn this into a vision of how the IT organization aims to operate in ten years' time. From this overall vision, we derive a medium to long-term plan, which, for an IT organization, will cover at most the next three years.

The aim is to create a consistent and aligned set of goals that will help the IT organization to move towards its longer-term vision. These goals must be brought into a timeframe that is more manageable for employees and leaders, at a day-by-day level.

6.2 Align Goals

The mechanism used within Lean to translate longer term goals to the more immediate future is called **Hoshin Kanri**. Literally, Hoshin means 'pointing device' or 'direction' and Kanri means 'management'. Hoshin Kanri tends to be translated as policy deployment.

Hoshin Kanri is a cyclic planning and management concept applied at the strategic level to achieve breakthrough objectives, and at the day-to-day level to manage the operation to keep the business running. Hoshin Kanri sets big picture objectives which are translated into specific actions through daily management.

The key characteristics of Hoshin Kanri are:

- It has a long-term focus, with a strong link to guiding principles and/or True North Values
- It is concerned with results, and the accompanying process focuses on achieving the results through people development
- It has both top-down and bottom-up components. The top-down aspect is all about setting the overall direction. The bottom-up aspect is a flow of information so that decisions can be made at the right level concerning the achievement of the results
- It is a participative process, in which all levels of the organization are involved through consultation and decision-making (**nemawashi**)
- It is primarily oriented towards ensuring and using the correct responsibilities and accountabilities set throughout the organization

Dr. Kaoru Ishikawa described the working of Hoshin Kanri as follows:
"Top managers and middle managers must be bold enough to delegate as much authority as possible. That is the way to establish respect for humanity as your management philosophy. It is a management system in which all employees participate, from the top down and from the bottom up, and humanity is fully respected."

Policy Deployment
Policy deployment starts with top management setting the overall vision and the annual high-level policies and targets for the IT organization. These targets must include objectives that will take the IT organization closer to its long-term (True North) vision.

At each level moving through the hierarchy, managers and employees participate in the definition of the strategy and a detailed action plan, which they will use to attain their targets. They also define the measures that will be used to demonstrate that they have successfully achieved their targets.

Then, targets are passed on to the next level down. Each level under top management is, in turn, involved with the level above it to make sure that its proposed strategy corresponds to requirements using **catch-ball communication techniques**.

Regular reviews take place to identify progress and problems, and to initiate corrective action.

Aligning Goals: Hoshin Kanri
Hoshin Kanri used in IT is a method for translating IT strategy to IT operations and ensuring alignment across the various aspects of IT operations. It works in two ways. Hoshin Kanri aligns both *horizontally (or cross-functional)* and *vertically*.

- **Vertical alignment** ensures that all stakeholders, from the boardroom to operations, are aligned. Through the layers of management interaction, goal setting and review, goals are set and adjusted so that they continue to fit. The vertical alignment enables anyone to trace activities and objectives back to the strategic goals of the IT organization and the enterprise (in the case of an internal IT organization). This means that individuals and teams can quite easily see how they contribute to the achievement of the goals
- **Cross-functional (horizontal) alignment** ensures that cross-functional stakeholders of each value stream have aligned goals that lead to the delivery of value to customers. Supporting processes, projects and Kaizen initiatives are all included in the horizontal alignment. The key is to share common objectives, make appropriate prioritization and resource allocation decisions that add value to the customer

Both types of alignment are absolutely vital within IT organizations. Cross-functional alignment is especially important in traditionally organized IT organizations in which the cooperation of various functional departments is necessary to deliver an IT service to the customer.

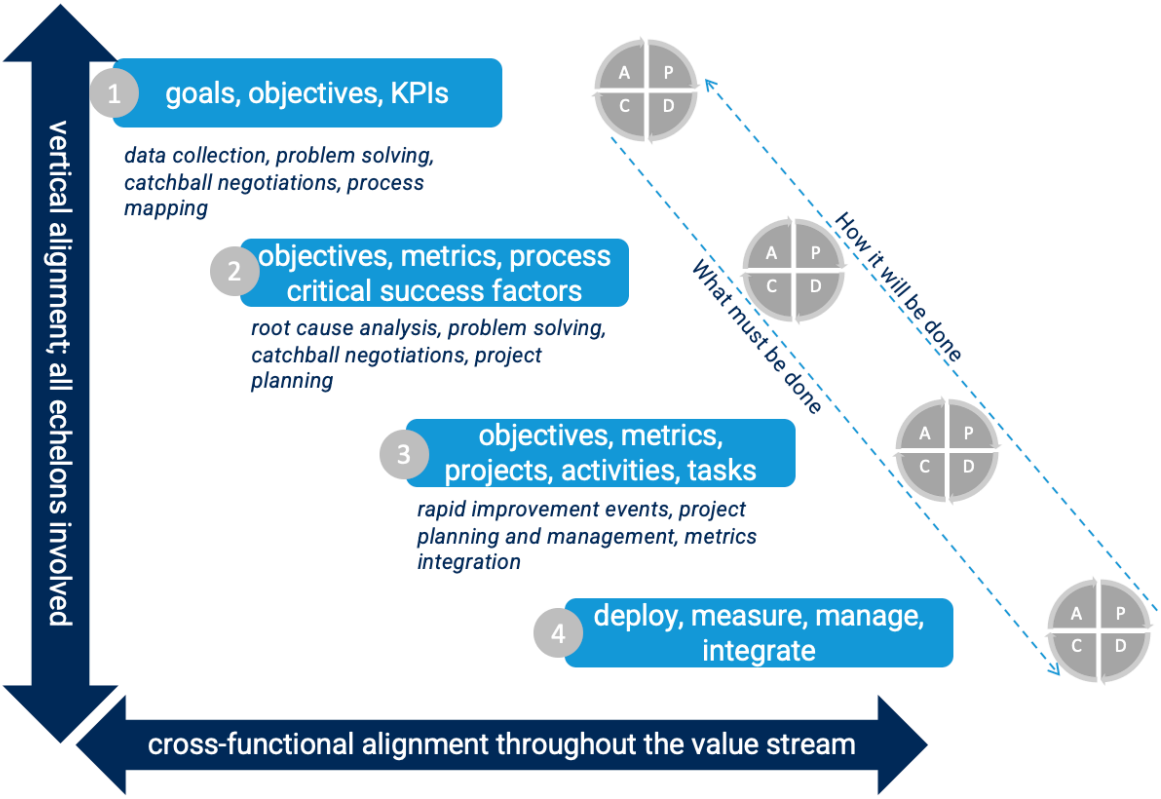

Figure 5: Hoshin Kanri: a method for translating strategy to operations.

Catch-Ball Communication
The communication of goals through the hierarchy is done using a technique called catch-ball communication. Catch-ball is a method of idea generation and sharing. The key principle behind the method is *respect* for the ideas and abilities of others. When do we use catch-ball communication? Any time that any of the aforementioned aims are important, and when a higher-level planning team needs to ask others to implement their plans. It works like this:

- The 'need' (a proposed vision or direction) is expressed by the leader, and the subordinate responds with an interpretation of what that direction will mean within the subordinate's realm of responsibility

- The leader then reviews the response with humility, open to proposals or ideas previously not considered by the leader
- As the ball (idea) is passed back and forth, new ideas emerge, as does a decision on the right course of action

This process exemplifies the principle-based thinking that is a hallmark of excellence and is a practical example of Nemawashi. Catch-ball communication is essential for the success of Lean as a systematized, teachable, repeatable way to:

- Confirm the practicality of proposed plans (and their probability of success)
- Actively solicit (and act upon) feedback and ideas from the "lower" level people that are responsible for actually implementing the plans
- Greatly improve wide-spread understanding of what needs to be done, why, and how.
- Greatly improve ownership and buy-in from the people responsible for results
- Demonstrate and encourage non-dictatorial leadership skills for all levels of executives, managers, supervisors, and team leaders

Performance Indicators

Leaders within a Lean IT environment must know where they stand in relation to their goals. This must be based on facts derived from the reality of the situation. These facts are referred to as performance indicators. They give a representation of the current state of the performance of the IT organization in relation to its goals and vision.

The performance indicators related to the IT organization's strategic goals are called the Key Performance Indicators, or KPIs. In the EXIN Handbook Lean IT Foundation, we looked in detail at how KPIs should be defined. The challenge for the Lean IT Leader is ensuring that KPIs are clearly linked to the strategic goals and that metrics used within the IT organization lead to consistent behavior towards achieving the goals.

What does this mean in practice? Lean IT leaders create a vision of where their organization needs to be. This vision tends to be described in a qualitative way. It is vital for the leadership team to explain what the organization looks like when the vision is put into practice. These are the areas in which performance is required.

The concrete descriptions of the performance areas that constitute the vision provide the input for the definition of the KPIs. They also provide input for the change story of the IT management team. The teams within IT must define their own contribution to the achievement of the organization's KPIs. This can take one of two forms. Either the team uses the KPI to measure their specific team performance or the team chooses a metric that provides a positive impulse to the achievement of the KPI.

An example may be that the IT management team wishes to measure the reduction of the impact of incidents on customers, for example by measuring and managing the reduction of lost production time in the business. A team may wish to measure – and reduce – the number of incidents that the team needs to process. Alternatively, a team may choose to measure – and increase – the number of problems solved to remove the sources of incidents. Both metrics help to achieve the strategic goal of reducing the amount of production time lost in the business.

This is one of the most powerful ways that leaders can align the goals within the organization.

6.3 Communication

Open, transparent communication lies at the heart of the Lean way of working. There are many sides to communication. In Lean IT Leadership, we can identify 5 tools and techniques that enhance the quality and openness of communication throughout an IT organization. Lean IT Leaders must be proficient in each of these methods.

Jidoka
Jidoka is a principle concerned with ensuring that leaders create an environment in which problems cannot remain unseen. Jidoka means giving the *accountability to the work floor* to stop errors from going forwards in the process. The Go-See principle is one of the most powerful reminders of the need for jidoka and the associated visual management.

Applying jidoka makes doing a *Gemba* walk substantially more effective. Work and issues are clearly visible on the basic set of visual management boards: the Day Board, Week Board and Improvement Board. On top of these boards, the key processes should be visible in the form of Value Stream Maps posted on the walls.

Jidoka goes beyond 'just' ensuring that problems are uncovered. It also gives employees the authority to *stop the production line* as soon as a problem is identified.

A key question for the Lean IT Leader to ask a team during the *Gemba* walk is: "What is your Andon cord?" Which translates to: How do you ensure that errors do not get passed forwards in the process? How have you constructed your processes so that we do not need additional controls, but still ensure quality at the source?

These are difficult questions to answer within an IT context, specifically as a result of the intangibility of IT work and the regular need for multiple teams to be involved in solving an incident or carrying out a change. Examples of solutions include the standardization of changes, programming in pairs, solving technical problems in teams, (automated) testing and creating automated checks of changes.

Visual Management
Visual Management is the tool that embodies the need to make the current state clear so that problems can be identified. Thus, visual management is an *absolute necessity* for Lean IT Leaders. It is the most effective way to know where the IT organization stands at any moment in time. Visual Management ensures that a *Gemba* walk can be carried out in a short time, but still has a high effectiveness.

The basic trilogy of Visual Management is:
1. The day board
2. The week board
3. The improvement board

All of these are necessary to deliver the information for making key daily decisions regarding continuous improvement, operational performance, and balancing workload within and across teams. Visual management infrastructure supports and aligns teams in their effort of creating value for customers and enables continuous improvement.

Furthermore, humans are highly visually oriented beings. Much of our (inter-personal) communication is based on what we see. Visual management is therefore vital for ensuring, enhancing, and facilitating communication (see EXIN Handbook Lean IT Foundation for further details).

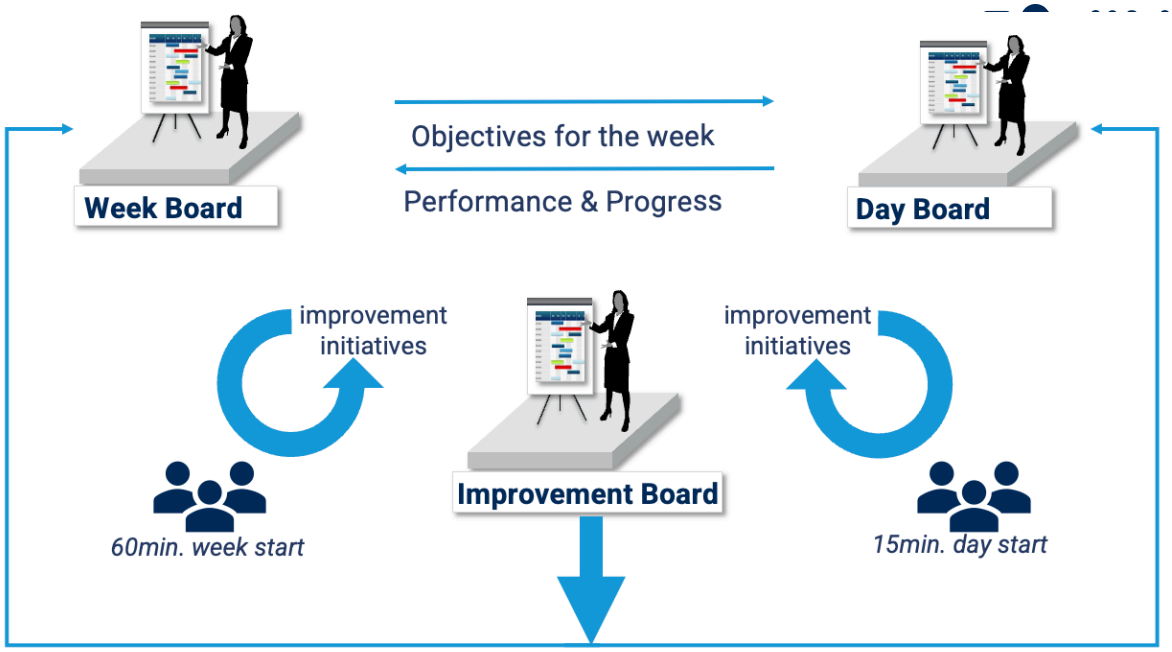

Figure 6: The relation between week, day and improvement board

Cascade

The second aspect of communication is ensuring that it flows to the place where it is needed. A cascade of communication must be built within the organization. A cascade is a mechanism that involves aligning meetings, so that the information shared in one meeting can quickly be brought to a different meeting in which the information is needed.

The key to getting the cascade to work is to align the agendas of the various levels of management. It is important to ensure that the upward and downward flow of information is optimized.

This means, for example, setting the time when all teams have their day starts. Most teams will have their day start between 08:00 and 10:00 in the morning. The team leaders will come together with their manager at 11:00, and the management team may meet early in the afternoon. In this way, issues from the work floor are transferred through the hierarchy of meetings as quickly as possible. This means that information is communicated to the right level quickly. The meetings must be run in such a way that the issues raised are dealt with promptly.

Ideally, this mechanism should work on a daily basis. However, experience has shown that running this cascade once a week is sufficient in most organizations. The benefits of holding meetings once a week include time being freed up during the rest of the week for managers to be available for discussion of issues and problem-solving. Having the cascade in place reduces the time spent on chasing decisions dramatically, because the flow of information is clear; everyone knows when they can expect an answer. Issues and requests for help no longer get passed into (or stuck in) a black box. They are passed up the cascade and there is a clear expectation that the leaders will do the work for which they are employed: to facilitate the work floor, particularly by removing mura and muri.

The greatest challenge to getting the cascade to work is actually emptying agendas and re-planning the meeting structure. However, most agendas are relatively empty a number of weeks in the future. By ensuring that the meeting structure is changed in the electronic agendas a number of weeks in advance, people will have room for particular meetings taking place at different times.

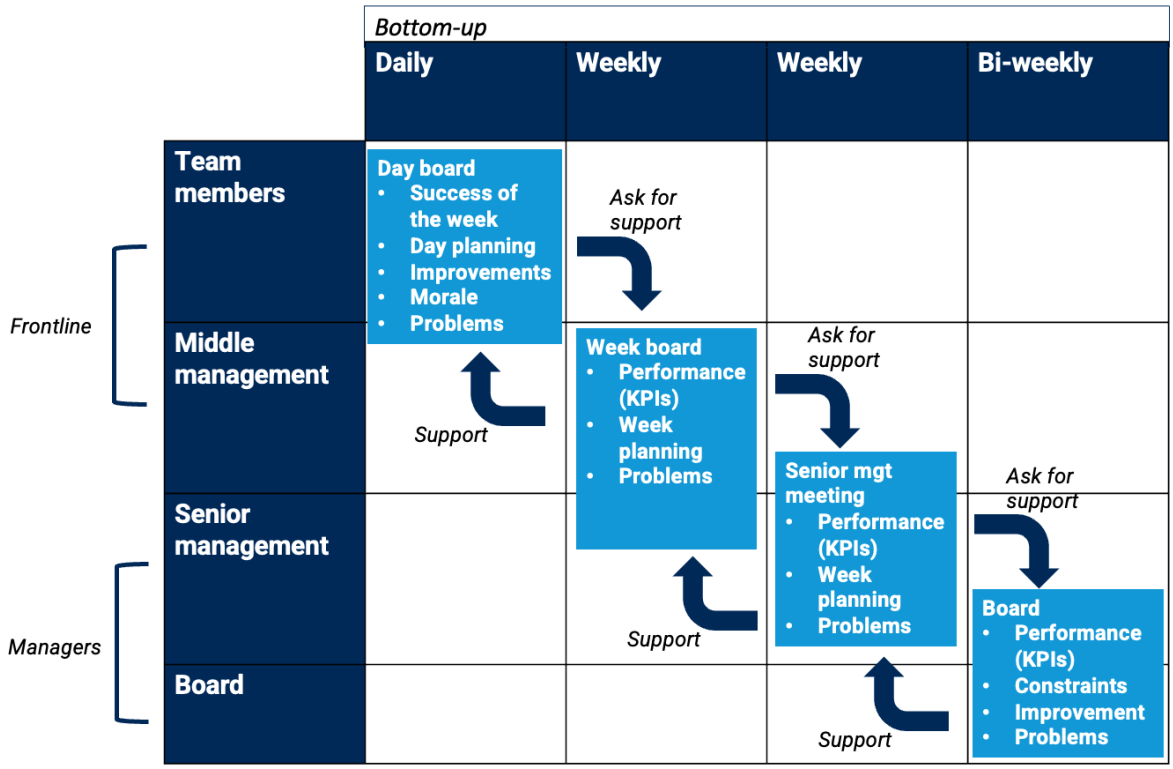

Figure 7: Example of how to structure agendas to facilitate the cascade

Performance Dialog

A performance dialog is a specific way of discussing performance (see also the EXIN Handbook Lean IT Foundation). Lean IT Leaders must master this technique to be effective. The performance dialog brings together a number of Lean behaviors: Goal-setting based on an integral and factual view of the work, providing support, giving feedback, showing respect.

New and ongoing objectives are discussed between a leader and employee. What are the mutual expectations and how have these been defined? Unclear expectations are the most common cause for disagreement between leader and employee. In the performance dialog, specifically defined objectives are discussed and agreed. These objectives should be SMART:

- Specific
- Measurable
- Achievable
- Relevant
- Time-bound

To ensure valid criteria, the leader should be knowledgeable about the daily operation of the team. That is one of the reasons that a leader should spend 50% of the time with the team in the workplace.

The leader must facilitate the employee in achieving the objectives by offering support. What does the employee need to achieve these objectives? How can the leader facilitate this? The leader has the role of a coach to help the employees express their needs and discuss how they can achieve the objectives.

Leaders must give constructive feedback and suggestions for improvement. The leader has observed the employee while working and gives feedback on how the employee performs or behaves, with the intention of developing the employee. This only works (and ends) well in a climate of trust and respect. Although trust and respect can be difficult to achieve, they are essential for building a high-performance organization.

A performance dialog can take the form of a one-to-one discussion but carrying out a day start, or a week review is also a form of performance dialog. The ability to effectively hold performance dialogs is a key skill of *anyone* working in a Lean environment, but especially of Lean IT Leaders.

Building Communication
A Lean IT Leader must be able to communicate clearly. Clear communication requires identifying which message needs to be told. Often the message is quite simple. On occasion, leaders must tell more complicated stories (the vision) or explain difficult decisions. The leader must build the communication in such a way that the audience understands the reasoning behind the decision. It is also the responsibility of the leader to check whether the story has been understood.

Any story must be constructed in a way that makes it easy to understand. The story must be consistent: argumentation follows a clear and logical set of steps, taking the audience from one place to another. A good story helps stakeholders to accept the proposed course of action.

There are many ways to construct a story. The one used in this handbook is Barbara Minto's Pyramid Principle. The Pyramid Principle is "*... a process for organizing your thinking so that it jumps easily off the page to lodge in a reader's mind*". This is a method that is fully compatible with A3 thinking. The pyramid principle helps to structure the information and insights gained during the Kaizen event. The *problem* is framed using the following framework:

- Situation: the current situation and ambition of what the situation will look like when the problem is solved
- Complication: a description of the things that are keeping the current situation the way it is or preventing the problem from being solved
- Key Question: this is the question to be answered; the problem to be solved (in question form)
- Answer: this is where the elements of the analysis are structured in order to present a coherent set of motivations supported by arguments, completed by the proposed course of action

The Situation-Complication-Key Question trilogy is similar to creating a problem statement in the Define phase of the DMAIC cycle. The answer includes the structuring process required to bring the Measure, Analyze and Improve steps of the DMAIC cycle together.

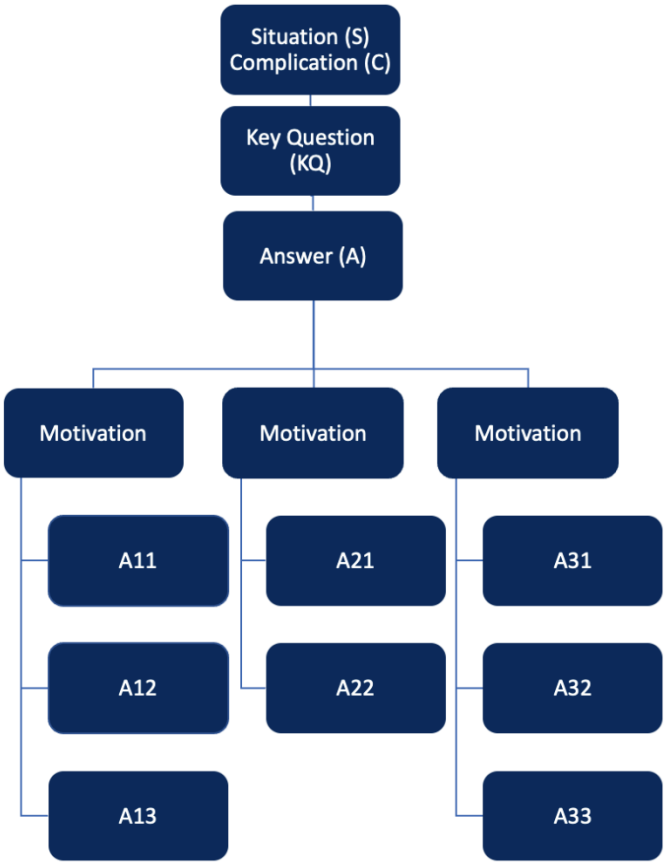

Figure 8: The Situation-Complication-Key Question structure

Using the Pyramid Principle means using a bottom-up approach for grouping arguments (A1.1 and so on in the above figure) in a logical way that supports a motivation for the answer you give. Each answer should be supported by at least three clear motivations as to why this answer is the *best* answer to the key question. The arguments and motivations will follow from the Analyze phase of a Kaizen event. The answer is the result of the Improve phase.

A useful technique in constructing an argumentation pyramid is **MECE**. This stands for

- **M**utually **E**xclusive: all items in a particular category belong only to that category and no other.
- **C**ollectively **E**xhaustive: all possibilities have been covered.

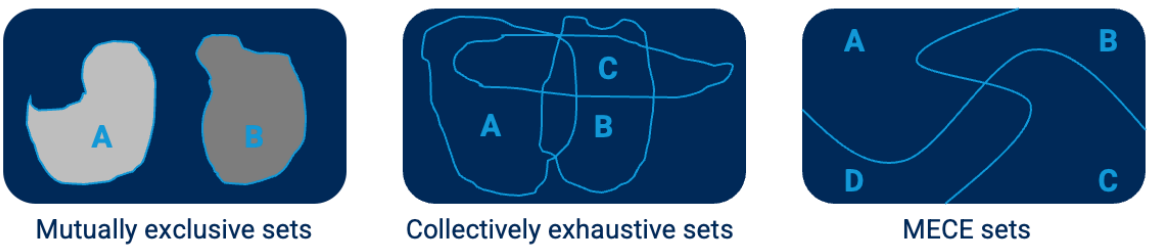

Figure 9: The MECE concept

Example
In an IT context, suppose that we encounter a situation where there is a lack of satisfaction with two applications. To do a sound analysis on the root cause of the lack of satisfaction we need data. The data set will include a variety of calls from customers about these applications. For the

analysis, we would need to have each call put into a single category: the call may be an incident, a service request, a request for information or a complaint. These categories must be defined in such a way that *all* calls in the data set fall within the definition of one of the four categories, and only in one of the four categories. A category 'other' should not be created. Instead, a more descriptive category, such as 'positive feedback' could be created. In this way, the data set and the analysis on which the data is based would be assured to be MECE. Additional categories can be added during the data collection phase, if necessary.

Creating a MECE data set allows subsequent conclusions drawn and proposals suggested to be relevant. Analysis may show that the calls for application 1 are distributed over 80% incidents and 20% service requests, whereas for application 2 the distribution is 20% incidents, 40% requests for information and 40% service requests. Assuming that the absolute volumes of calls are the same, the analysis may conclude that application 1 is technically unsound since it has many technical disruptions. Further analysis may identify the causes of these disruptions. In addition, the analysis may show that there has been insufficient user training for application 2, because there are many calls for support.

The analysis could result in two Motivations
1. Resolve the technical problems and
2. Train the users

These are followed by a series of arguments that leading to the motivations. The answer to the key question is: We need to invest differently in Applications 1 and 2, to increase the user satisfaction of the two services.

Change Story
In the final chapter of this handbook, we will discuss the Lean IT transformation. Before any attempt to mobilize the IT organization towards adopting Lean IT principles as the core philosophy is made, the *leaders of the IT organization* must be clear on ***why*** this transformation is necessary. Each *individual manager* must know ***why*** they are supporting the transformation, which is a substantial change to the IT organization.

To communicate the need for change, the Lean IT Leader must start with a compelling change story. Change only works when leaders speak to people's hearts, as well as to their minds. A change story is crucial in influencing both employee behavior and attitude.

A **change story** is a clear description of which changes need to be made and ***why***: the change story gives direction. In the change story, the *motivation* behind the desire to change is described. The motivation should create a sense of urgency to change. The change story is the leader's signal that "business as usual" is over, and that the organization is moving towards a new business as usual.

A good change story is important, because it provides continuity during the period of uncertainty that any transformation creates. Often, when the transformation becomes difficult and results do not materialize immediately, people will start to doubt the wisdom of the change. Having a compelling and clear change story helps the leadership to keep the transformation on track.

A good story is also a powerful tool for creating alignment throughout the organization. Although the leadership team must tell the same story, it is vital that each individual leader gives it their own personal taste.

The change story must be written by the leader with their readers in mind. It must speak to the hearts and minds of their teams to have the most effect. A change story that speaks to the hearts and minds of the people is personal, passionate, and inspiring. It is specific about what needs to happen, gives clear direction, and exudes a sense of urgency.

Finally, a change story aims to recruit people's support and must, therefore, include a *call to action*.

6.4 Aligning Within IT

Leading requires preparation. The Lean IT Leader must have a Change Story outlining the direction of the organization or team. This is very important for the people working in IT because of the pace of development of IT, both technologically and in terms of priorities. The Lean IT Leader should use the Pyramid Principle to structure the story. This helps to ensure the consistency and completeness of the change story.

Visual Management is the central tool on which the work is recorded. Changes in priority can be communicated and effectuated through the week, day and improvement boards. The Lean IT Leader must be proficient in carrying out performance dialogs at each of the boards. In this way, the Lean IT Leader coaches teams and individuals to the required performance.

Lastly, visual management throughout the IT organization forms the physical support for an effective cascade through the organization. Ensuring this cascade works efficiently and effectively is a critical task of all leaders within IT.

The most critical component of the alignment within IT is *visual management*. The diversity of teams within IT means that visual management comes in many forms. We look at the application of visual management in software development, IT operations and the IT service desk.

Development
Add the unit of work to the Product Backlog
When a new piece of software is developed, it must be visible that this **unit of work** needs to be processed. The unit of work must be posted on a visual Product Backlog containing the work that needs to be done.

Add the unit of work to the Day Board
The software development team will place the ticket for the new piece of software on their day board, which bases its flow on the simple process of 'To Do' items, 'Doing' items and 'Done' items, which have been completed.

The work selected from the backlog is put into the To Do section. Here we see alignment with the customer in that the team indicates what capacity it has for the next 2 or 3 weeks, and together with the customer determines which units of work have the greatest business value.

Comply with the Definition of Done
Embedded in the flow of To Do – Doing – Done is the **Definition of Done** concept. This describes the organizational requirements and quality requirements for the finished product. The Definition of Done helps to establish and enforce standards.

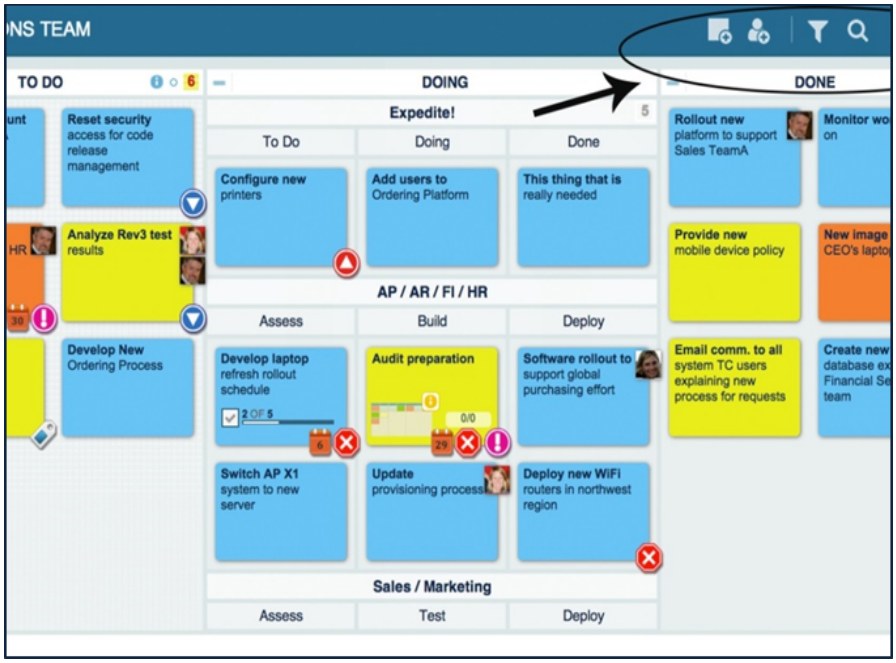

Figure 10: Example of Visual Management in a Development context. Day board (To Do – Doing – Done) of a software development team

IT Operations
The IT Operations team needs to reserve capacity to implement and, when implemented, support and maintain new functionality, and carry out operational activities on existing IT services. These activities will be placed on the week and day boards of the Operations team.

First, they will appear as one or more goals of the week and, subsequently, be allocated to a person for execution on a particular day. The IT operations team must integrate the new service into existing processes, performance indicators and reporting structures.

This requires estimating the number of operational activities, incidents, problems, service requests standard changes and non-standard changes that operations will need to execute on a weekly basis to keep the new and existing services working. The input for the team is a set of well-defined quality standards and Service Level Agreements, as they are agreed with the customers.
Service Desk.

Visual management of the service desk will focus on understanding how customer interaction is being handled:

- What type of requests are coming in?
- Through which channels are these requests coming to the service desk?
- How much use is being made of self-service facilities?
- For what types of requests do customers use which channels?

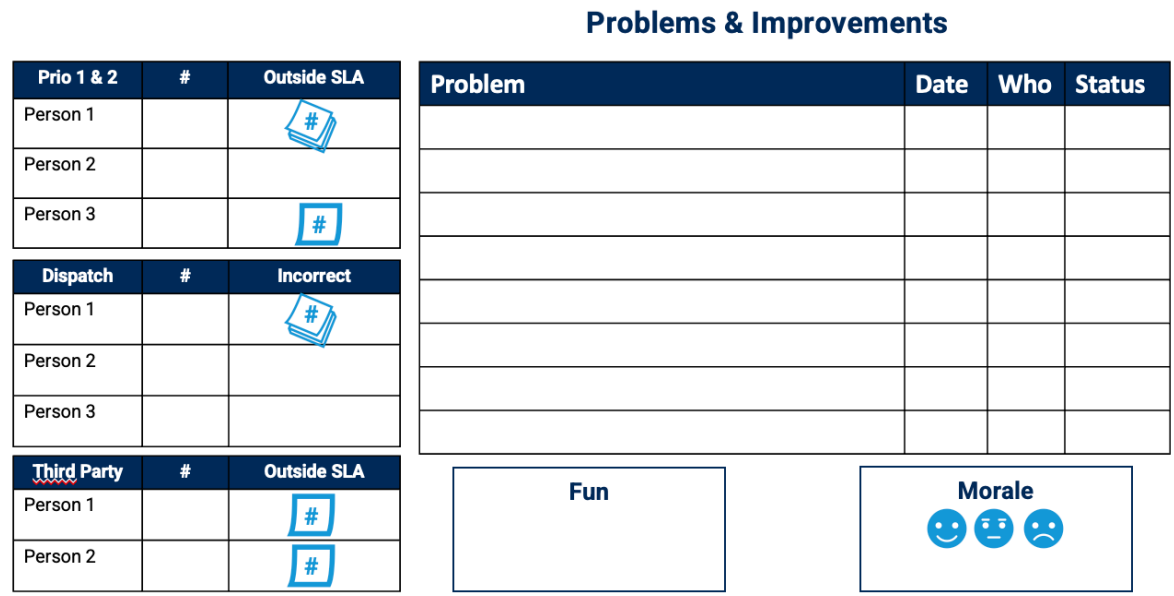

Figure 11: Example of Visual Management for a Service Desk

There is a strong focus on understanding which problems exist and which improvements need to be carried out. During the day start, the service desk team will focus on special categories of calls, such as:

- High priority calls that are overdue
- Calls that have been routed to third parties
- Calls that have been incorrectly dispatched
- Number of overdue calls in each resolution group

The service desk will align with both the IT operations team and the software development team by feeding back information regarding the usage of and problems with the new software. In addition, they will present possible improvements to the way of working of the teams.

The team leaders must ensure that they collectively align the goals of the teams. All of the leaders must have access to the same information, which should be available on the visual management boards. Doing a *Gemba* walk together will help to identify issues throughout the entire value stream. Leaders of the teams can work together in identifying and optimizing the value streams.

7 Lean IT Transformation

We assume that you will start using Lean IT from a position in which your IT organization is run using “traditional” or western management principles. In this chapter, we will discuss how to start the Lean IT journey from a practical perspective. What do you need to do to ensure that the IT organization is able to work with Lean principles?

We also assume that management of the IT organization now understands and agrees that Lean IT provides benefits in the delivery of high-quality IT services at competitive cost levels.

7.1 Why Transform to Lean IT?

The first step to implementing a different way of working within an IT organization often comes from case studies of successes achieved in other IT organizations. This is true for both technological improvements and organizational improvements. The benefits that others have achieved can be a powerful motivator for adopting new methodologies or technologies. However, this motivator should merely be a pre-cursor to the definition of an individual and organizational business case for Lean IT: a ‘what’s in it for me and us?’

The ‘what’s in it for me?’ is important because individual motivation is vital to start the ball rolling. The ‘what’s in it for us?’ is vital for explaining to others why they should join in.

There are essentially three components to the business case for Lean IT.

1. **Customer Satisfaction**
   Internal IT organizations and external IT service providers have all had, at some time, problems with customer satisfaction. These issues tend to be related to excessive disruptions in existing IT services, long lead times in the delivery of new capabilities and the insufficient delivery of promised capabilities.

   The benefits that Lean IT brings to increasing customer satisfaction start with the increased **focus on customer value**. This shift in focus can be particularly seen in a shift of behavior and attitude of everyone within the IT organization away from individual targets and goals towards a goal-sharing mentality, in which customer value is central.

   In a more practical sense, the behavior and attitude of all employees, when used with the Lean IT tools, leads to the structural elimination of defects and dissatisfiers. This, in turn, leads to the increase in reliable and predictable delivery of services and the development of superior IT products and services.

   For external IT service providers, Lean IT can clearly bring a better market position due to increased loyalty from customers and a new or sustained reputation for high quality services.

2. **Strategic Advantages**
   Lean also brings what can be described as strategic advantages; advantages that allow the IT organization to operate in a way that leaves it less liable to substitution (outsourcing) or other effects of competition.

   Strategic advantages are principally achieved through the development of competencies that are difficult for other organizations to copy. Although the adoption of Lean IT may be similar for all IT organizations, the effects will undoubtedly be different. Lean IT provides

strategic value because it encourages competence building with the continual improvement of processes.

Lean IT delivers higher productivity due to increased efficiency as a result of removing waste from the system. The removal of waste delivers time advantages, because the IT organization can provide new IT functionality and capabilities more rapidly.

Lastly, and maybe most importantly, Lean IT has been proven to improve employee and managerial *involvement and motivation*. This commitment from everyone in the organization is a source of much strategic advantage, since this is one aspect that cannot be copied; it needs to be developed within the IT organization.

3. **Cost Advantages**
   No business case is complete without a financial aspect. There is an almost automatic reaction that when increasing quality, costs will rise. Lean paradoxically works on the opposite premise: applying Lean principles reduces waste and increases flow leading to better quality of processes and resulting products and services. This should lead to lower costs or at the very least the ability of the IT organization to produce more with the same people. If it does not, you are not doing it right or you are not done transforming yet. Lean IT aims to optimize value-add work, so that there is time for other activities.

   Focus on reducing work-in-progress and inventory leads to improvements in the cash flow position of the organization. This means a stronger order-to-cash position of the external IT organization. Even for internal IT organizations, the cash flow position of the entire enterprise benefits if the WIP and inventory of the IT department is reduced.

   All in all, there is a strong business case for Lean IT. However, it is vital for the IT management team to identify the business case for its *own* IT organization. Each IT organization must define its own reasons for starting the Lean journey. It is this preliminary discussion of the *reasons* for Lean IT that provide the longer-term vision and goals to which the managers within IT can and must commit, both individually and collectively.

7.2 Stages of Transformation

Transforming an IT organization to a Lean IT organization can be done in three steps. Each of the three steps is a learning level. Experience has shown that IT organizations invariably go through these three stages of development. Each stage takes time and effort. Take the time to get your entire organization through an entire stage, before proceeding to the next stage. This saves disappointments and the 'failing' of Lean in the long term.

Stage 1: Know What
In this stage, there is a group of people who believe that Lean IT is the way to go. This group will include managers and employees who may previously have informally discussed using Lean principles. At a certain point in time, the choice is made to start using Lean tools and techniques in some specific organizational areas. This may include adopting Lean for software development, complete with techniques such as Scrum to facilitate the more reliable delivery of new software, or the use of visual management in an IT operations department to better monitor the flow of units of work through processes.

Some people will be immediately engaged because they see benefits for themselves. However, the principal reason for involvement for most people is that they are asked to join in. This may happen under strong guidance from Lean IT consultants. People *do* Lean IT, at least initially, because everyone else is. It usually does not immediately come from an intrinsic understanding of 'what's in it for me?'

There is often a substantial amount of skepticism as to the ability of this new 'fad' to deliver results and benefits. Many IT people have seen a variety of models, trends and hypes, and have also seen many blow over. It is extremely important for IT management to realize that starting on the journey to Lean IT is a long-term commitment and *not* the new management trend that may or may not blow over when the next new thing comes along. Then, when IT management believes in Lean, it is vital to communicate this belief and the timeless value of the Lean principles, and that Lean working will free up human resources who can innovate and add more value for the customer.

In this stage, the key is to maintain the discipline of using the Lean methods and principles, so that these can be turned into *habits*. The presence of the leader as coach, supporter and teacher is vital. In addition, this new habit of the leader to be more respectful will help employees respond well to the new management style. In this stage, trust and respect must be built. Keep in mind that this foundation stage requires time, effort, and close attention of the leader.

The first stage is the collective 'Shu' stage, in which the IT organization must develop its Kata and follow it.

Stage 2: Know How
In the second stage, Lean tools are integrated over the various parts of the IT organization and value streams. People have 'automated' a number of the Lean tools and principles into their daily work. At this stage, teams will carry out day starts, daily Kaizen and other such activities independently of the presence of the leader. The team has fully understood the working and benefits of the Lean way of working. The Lean way of working provides a new predictability for the IT organization; people know what to expect.

The organization is constantly encouraging and practicing Systems thinking; a perspective to ensure that improvements affect the entire value chain. The leaders' attention shifts from focusing on discipline, time and reflection on Lean tools, techniques, and principles to doing so for systems thinking.

In the second stage, Lean IT is recognized as the IT organization's mode of operation. There is widespread belief that Lean IT is the right thing to do. However, there will still be pockets in the organization where Lean IT is not fully adopted and there will be moments and situations in which people (engineers and leaders) will revert to old, non-Lean behavior. People increasingly recognize these situations and coach each other to walk-the-talk; to provide the predictability that has been instituted in the organization

Stage 3: Know Why
The final stage is when Lean principles have been fully embraced by the whole IT organization and a deeper understanding of Lean IT is present throughout the entire organization. Practicing Lean IT has become the way of life, the new 'normal', the new 'business as usual'. Lean is not negotiable; it is who you are; it is how you do what you do.

The collective and individual ways of thinking and acting are recognizably determined by Lean principles. Everyone in the IT organization contributes to, supports, and teaches Lean IT and its further evolution within the organization.

7.3 Transformation Means Change

It is obvious that moving towards a Lean IT organization will be a departure from the current way of working; a change that requires effort and dedication to achieve the intended goals.

For IT organizations, this change follows the general rules that govern organizational change. One of the widely used and insightful publications on the general rules of change is John Kotter's 1995

article '*Leading Change: Why Transformation Efforts Fail*'. He clearly describes eight reasons for failure and proposes a corresponding eight-step model to mitigate the key mistakes.

Let us look at the eight critical errors that can have a huge effect on the results of the change:

- Error #1: **Not establishing a** great enough **sense of urgency**. People do not understand the need for the change
- Error #2: **Not creating a** powerful enough **guiding coalition**. Enough people within the organization need to understand the need for change. It is not enough for only the top management to understand the need. Throughout the organization, there must be people supporting the need for change.
- Error #3: **Lacking a vision**. There must be a clear vision for the future. As we have seen, this is the responsibility of the leaders of the organization.
- Error #4: **Under-communicating the vision** by a factor of ten. It is well-known that communication is critical in changing organizations. Leaders have a tendency to think that it is enough to tell people a few times where the organization is going and what needs to be. Experience learns that it is a message that needs telling every day.
- Error #5: **Not removing obstacles** to the new vision. Leadership must work to make it easy for the organization to work in the new way
- Error #6: **Not systematically planning** for and creating short-term wins. Regular successes help people to maintain their enthusiasm for the change. It is important that leaders are continually aware of the successes (even small ones) that are being achieved, and celebrate them
- Error #7: **Declaring victory too soon**. Often, a substantial period of reflection precedes the decision of management to carry out a change. When the implementation finally starts, managers make the error of thinking that everyone else is at their level of understanding of the change and expect results to be achieved quickly. After the first few successes, it is tempting to think the transformation has been completed and that management can move on to the next priority. Mostly, the transformation is far from completion.
- Error #8: **Not anchoring changes** in the corporation's culture. This means ensuring that the change is part of the habits and routines within the organization. It is part of the way people think and act. Removing support from the change before this time removes the foundation from under the change cause it to dissipate or erode over time.

As we have seen in Chapters 3 to 6, Lean IT actually includes the remedies to all of these errors. Built into the role of Lean IT Leaders are all of the activities that will mitigate these errors. However, not making the errors and fixing errors if they occur require dedication, time, and effort.

In Lean IT Leadership, one of the key requirements for leaders is developing a vision for the future; they must be able to tell a compelling story. This is covered in Step 4 of the Lean Leadership Development Model. The leaders must form a guiding coalition to ensure that Lean IT is adopted. We see the need for not only employee teams on the work floor, but also for functioning teams of leaders throughout the cycle.

Through the business case for Lean IT (Step 4), the leaders create a sense of urgency for the move towards Lean IT. The sense of urgency starts with the collective commitment to goals (Step 4) followed by the individual commitment to develop (Step 1). Lean is all about communicating to ensure buy-in. We see structures such as information cascades and visual management (Steps 2 and 3), and the informal process of nemawashi; these structures are all focused on open, transparent communication, which helps to gain support and acceptance for the vision and the necessary choices.

In Step 2, Lean IT Leaders help others to develop, and, in Step 3, they stimulate and support Daily Kaizen. These are two clear examples of how the Leadership development model supports empowering others to act. Daily Kaizen (Step 3) also helps to ensure short-term wins. Together with Steps 1 and 2, Daily Kaizen also helps to consolidate improvements made and encourages

people to continue to seek more change. As we saw in Step 1, the creation of habits is integral to Lean IT Leadership. This is a future-proof way of institutionalizing a new way of working.

All in all, we see that Lean IT Leadership contains tools and methods for dealing with the eight key pitfalls that Kotter identifies in his 1995 article.

7.4 Individual and Team Change

Even if we are able to avoid all of the mistakes outlined by Kotter, we are still dependent on the cooperation of individuals and teams. People are notably fickle: one day they may be positive, the next they may be less cooperative as a result of other influences in their lives. This makes a Lean IT transformation a complex, if not chaotic, problem to be solved.

Fortunately, research has shown that people react in fundamentally similar ways when confronted with change.

In their article "*Beyond the Peter Principle—Managing Successful Transitions*", Ralph Lewis and Chris Parker describe a transition curve experienced by someone who has been promoted to a new managerial position. This curve can help to understand experiences people go through when the organization changes. The problem with change is that it is never all positive or all negative. During a transformation, it is also the case that some parts of the change are planned, and others happen by accident.

The seven stages stated by Lewis and Parker are similar to the five steps in the grief curve described by Elizabeth Kubler-Ross. In the figure below, each of the phases is described.

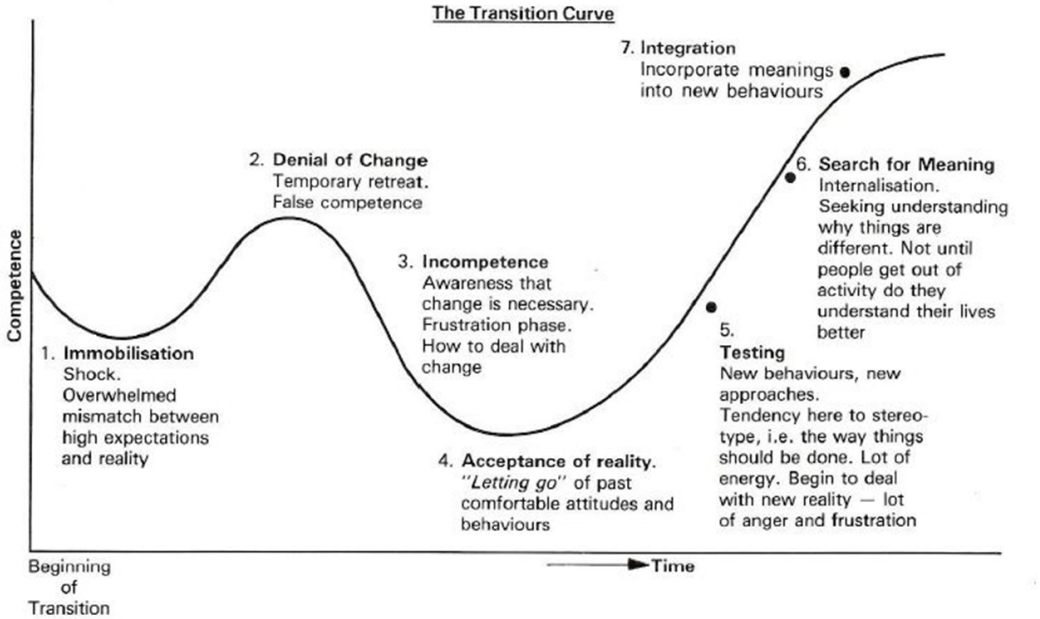

Figure 12: Lewis-Parker Transition Curve

This figure is very important for Lean IT Leaders. Firstly, they will be experiencing these phases themselves. The process goes through shock that the 'business as usual' world is changing. In many cases, the denial of the change may take the form of the manager *believing* that they are experienced and already carry out many Lean IT activities and, therefore, do not really need to change much. Although, usually, this is not true.

As more and more new information about Lean IT enters the organization, the leader can feel incompetent. This results in anger and frustration. Without support, the manager may become a destructive rather than constructive force. It may help to realize that actually, the leader becomes more competent in Lean IT Leadership, since she is now able to recognize all non-Lean behavior, she exhibits. As the leadership team helps one another to take the Lean IT Leadership steps, the new reality becomes accepted. Through trying out new behaviors, the leader can define a new meaning for herself, followed by the integration of Lean behaviors into day-to-day work.

Collectively going through the four Lean leadership steps facilitates the adoption of new behavior. Particularly the foundation and structure offered by Leader Standard Work and daily Kaizen provide a secure footing for the leader to go through the Shu-Ha-Ri process.

This experience will help the Lean IT Leader to relate to what people on the work floor are going through. The idea is to show understanding and show the way forward, rather than joining in with the complaining. Lean behavior is about identifying problems and looking for solutions on a daily basis. And going back to the practices of yesterday is not a long-term solution (i.e. choosing for Lean means letting go of many of the pre-Lean behaviors, even though it means hard work in adopting the new Lean practices).

In essence, Lean IT Leaders and their teams must go through three broad phases:

1. Farewell
2. Letting Go
3. Moving Forward

They must leave the current way of working (**Farewell**). This can be done by looking carefully at the current situation and by putting the present and the past into perspective. The best way to do this is to show respect for the efforts people have made and results they have achieved and explain why the new step is necessary. It is critical to spend time informing and communicating the vision for the *future*. The Lean IT Leader must show understanding and sympathy for the loss people are likely to feel.

The next step is to help the team let go of the past (**Letting Go**). This is done by providing help, support, and motivation. One of the best ways to take this step is to engage the team in carrying out long desired improvements that are in line with the Lean principles. The Lean IT Leader must continue to inform but should also reassure the team that the right steps are being taken.

Finally, the Lean IT Leader must help the team to move forward (**Moving Forward**). This means encouraging Daily Kaizen and helping the individuals to develop further. In this step, the Lean IT Leader must be clear about celebrating successes and ensuring that the team is supported in its further development.

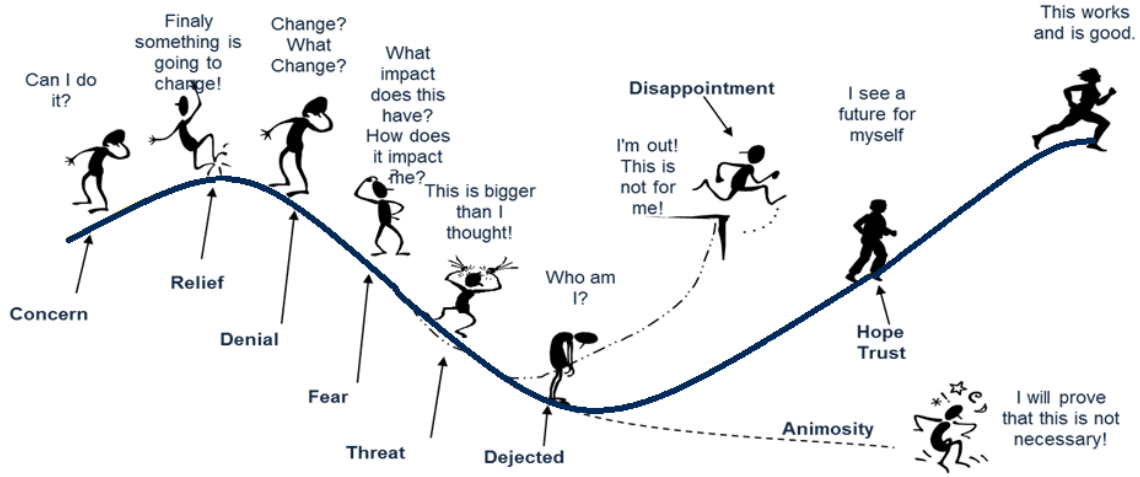

Figure 13: The Process of Transition - John Fisher, 2012

Finally, Lean IT Leaders must remember that what counts in the adoption of new technologies and ideas, counts for the adoption of Lean IT as well. People will adopt Lean IT at different speeds. It is well-known that people fall into one of five categories of adopters when it comes to adopting new ideas and technologies, based on Rogers classification in Diffusion of Innovations:

- **Innovators**: these are the people who take the risk to first adopt new ideas. These people may be critical but will be enthusiastic for the change
- **Early Adopters**: will try out new ideas but in a more considered or careful way than the innovators. They tend to see the positive aspects in the change
- **Early Majority**: these are the people who carefully look at the development. They are generally susceptible to a high level 'what's in it for me?'. They accept that the change is likely to bring more good than bad
- **Late Majority**: these are people who are skeptical of the change and will follow once a clear majority has decided to take the leap
- **Laggards**: these are the people who will resist the change both actively and passively. They will always be able to say why the old ways were better and that the new way is nothing new

The guiding coalition will generally be made up of people in the first two categories. However, it is also likely that among the leadership team, there are people from the other categories. When designing a transformation, it is important to take the different rates of adoption of change into account. This is one of the reasons why a transformation should include revisiting teams that have been through their first iteration; to ensure that the late majority and laggards are given the chance to join in.

The position an individual takes towards the change depends on their experiences with organizational change in the past. IT has seen many different technological and organizational hypes, which together make the longer-serving IT employees skeptical or even immune to the change. The position on the adoption curve will also be affected by whether a person volunteers for the change or is 'planned for change'. Their degree of involvement in introducing Lean IT will also partly determine their positioning on the five different categories. Teams positioned in one of the later waves may feel they are not important enough and may think that everything will have been decided by the time the transformation reaches them. In addition, even if people are early adopters of new technology, this does not always mean that they are early adopters in Lean.

In summary, when designing a Lean IT transformation, Lean IT Leaders must:

- Focus on carrying out the entire Lean Leadership Development Model, since it includes solutions to all the pitfalls identified in Kotter's Change Model
- Remember that everyone, both the leader and team members, goes through a transition period in adopting new ideas and practices
- Take into account that people adopt new ideas and practices at different rates

7.5 Transforming To Lean IT

Transforming the IT organization into a Lean IT organization is not easy. It requires changing multiple aspects: the way the IT organization interacts with the customer, the way processes work, the way performance is measured and steered, the way the IT organization is organized and, most importantly, the change in behavior and attitude of everyone involved.

A transformation is a stressful time, and it is easy for leaders to lose focus. Especially during a transformation, a methodology is helpful in managing the change effort to become Lean. Lean IT transformations are designed in multiple phases. Each phase should address issues identified in the Kotter Change Model.

Typical questions for which answers will need to be provided are:

- What phasing do we use for our transformation?
- In what order will parts of the organization participate in the transformation?
- What is the optimal timeline and planning for the transformation?
- Should the transformation be top down or do we rely on bottom-up initiative?
- What kind of activities and interventions are part of our roll-out?
- Who will do what during the transformation?

The transformation must be designed at both an organizational and a team level. In this way, we can provide everyone in the IT organization with the vision and a plan, and with a time in which they can expect to get involved.

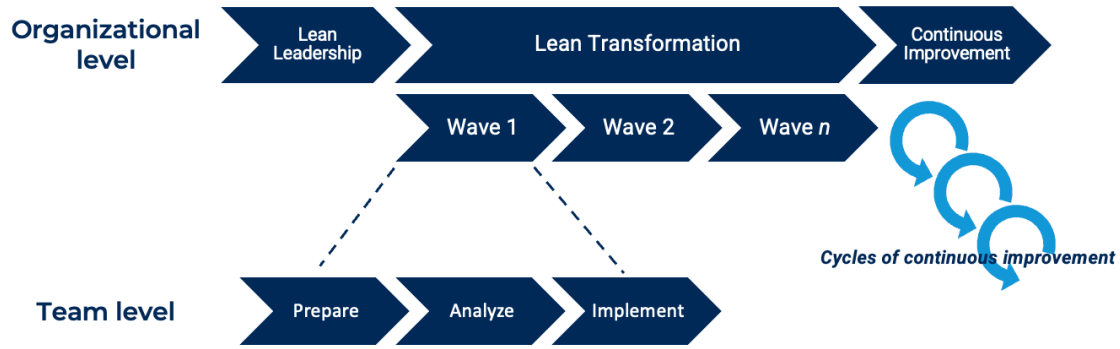

Figure 14: A Lean IT Transformation design

Organizational Level – Step 1: Lean Leadership
At an organizational level, there are essentially three phases for the transformation. We start with preparing the change. This can only be done by the leaders of the IT organization. They are fully accountable for initiating and sustaining the chosen direction.

The first step is therefore **ensuring that Lean IT Leadership is developed**. In practice, this means that the leadership goes through a full cycle of the Lean Leadership Development Model, discussing and trying out new structures and behaviors as part of choosing to commit to the change. It is only as a result of the Lean Leadership phase that the IT leadership team can truly state that they intend to move forward with Lean IT.

Does this mean that nothing happens on the work floor during this time? Certainly not. Even though this first phase emphasizes the first step in the development of the IT leaders, compatible initiatives on the work floor should be encouraged. This fosters the start of a collaborative learning environment, in which teams and leaders learn from different perspectives.

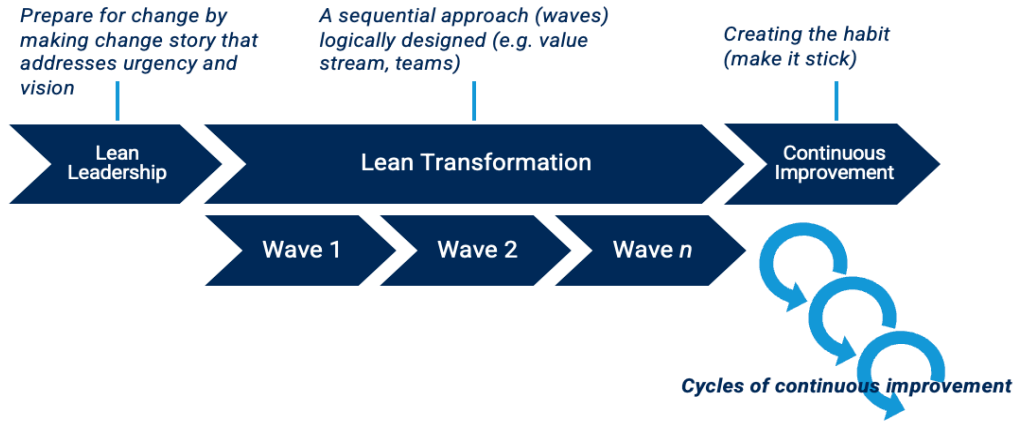

Figure 15: Three steps of a Lean IT Transformation

The key result of the Lean Leadership phase is a common change story in which the urgency and need for change are communicated, together with a vision for the future. Each leader has their own change story. The Lean Leadership phase is obviously not just a phase. As we have seen, the development of Lean IT Leaders is a *continuous process*. The Lean Leadership phase ensures that true commitment is voiced and that the first iteration of Leader Standard Work is defined. The change story, commitment and Leader Standard Work are the three anchors that ensure leaders can help each other to stick to the changes agreed upon.

Organizational Level – Step 2: Lean Transformation
The next phase at the organizational level is the **transformation** itself. This is the phase in which teams are helped to adopt the Lean way of working.

It is important for the development of the teams that the leaders decide on whether teams go through their initial transformation based on volunteering or whether the leaders determine a roadmap in which the sequence of team transformation is dictated. In larger organizations, it is often simply not feasible for all teams to start the transformation at the same time. The resources to support the teams are simply not available. Transitioning large organizations usually involve so-called '**waves**'.

If the transformation is carried out in waves, the waves should be logically sequenced. The teams in a single wave will need to be selected in a non-random way. Key considerations for teams to be in the same wave are whether teams are dependent on one another, whether they serve the same customer or whether they form part of the same value stream.

If the transformation is taking place in a traditionally organized IT organization, we will find a large interconnectedness of the departments. The IT leadership may then choose to transform functional areas one at a time, for instance first the development teams, then the IT operations teams (or the other way round).

The transformation must ensure that teams are supported throughout the *entire* transformation period. There is a risk that once the team of Lean IT experts helping the leaders to drive the transformation have finished in one area and move on to the next, the transformed teams will be left to their own devices; leaders declare victory too soon.

Organizational Level – Step 3: Continuous Improvement
A wave ends with putting all mechanisms in place to ensure that gains are consolidated and further improved. This is when the Continuous Improvement phase starts. The Continuous Improvement phase focuses on keeping the cycles that were started in the Lean Leadership and Lean Transformation phases going.

One of the key questions is: who does what? This question needs to be answered at the organizational level. During a Lean IT transformation, there is much to be learned. For both leaders and employees, there are many activities to be practiced in order to create a new Kata. In this busy period, experience has shown that it is very useful to assign employees to the role of Lean IT coach.

A Lean IT coach takes the role of member of the guiding coalition. However, the Lean IT coach does not the hierarchical position of the managers. The Lean IT coach is usually trained during the Lean Leadership phase, together with the managers. It is a good idea to select people who have leadership potential for the role of Lean IT coach. In this way, if there happens to be a leader who does not wish to adopt the Lean philosophy, there already is someone else suitable for the position. Growing the leadership potential ensures that the Lean IT Transformation is not jeopardized by the absence of a leader in an important position at a critical time.

Lean IT Coaches play the role of the conscience of the IT organization during the transformation. They help the leaders to stay on track and to stick to the commitments they have made. Coming from the work floor, the Lean IT Coaches tend to have informal networks among the teams and can

help individuals and teams to understand the transformation to a Lean IT organization. Especially at the start of a transformation, as traditional managers make their first steps to becoming Lean IT Leaders, the coach can play a critical role. The coach can ensure that the manager is given a chance to learn and grow as a Lean IT Leader.

Ideally, Lean IT Leaders play both roles: Lean IT Leader and Lean IT Coach. However, the steep learning curve makes this a risky choice at the start of the transformation. In many cases, the Lean IT Leaders choose to supplement their internal Lean IT Coaches with an experienced Lean IT consultant. Hiring experienced Lean IT consultants lowers the risk of failure.

Team Level – Step 1: Prepare
At the team level, it is important to provide a clear outline of what activities will take place to help the team to adopt Lean IT principles and ways of working.

Per team, we follow a three-step process of preparing together with the team for the initial transformation. This will include training and understanding the particularities of the team. It also means discussing the activities of the Analyze and Implement steps. Much attention is paid to ensuring the team leader is fully aware of what is expected.

Team Level – Step 2: Analyze
This is a phase in which the team comes to terms with the reality of their situation. This means deep investigations into, at least, the following aspects:

- Units of work processed by the team
- Processes that run through the team, including identification of muda, mura and muri
- Requirements of the customer, regulators and other teams regarding the team
- Performance and time usage of the team
- Skills and knowledge in the team

This analysis establishes a baseline from which improvements must be made.

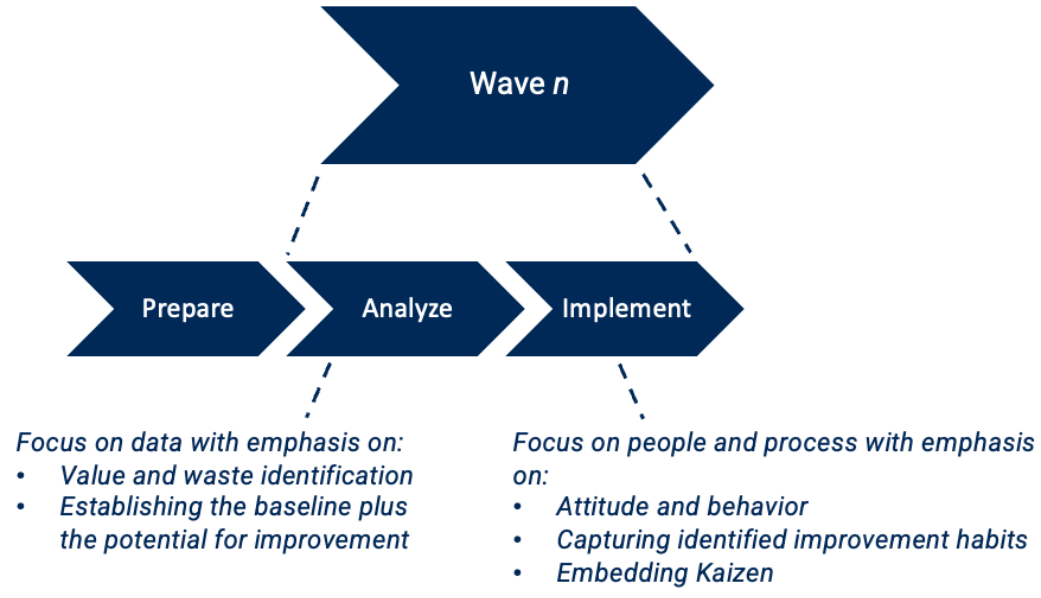

Figure 16: Analysis phase of a Lean IT Transformation

Generally, the analysis step will cause the first three steps of the Lewis and Parker curve to happen in the team. The team members will be faced with the reality of their situation, leading to denial and potentially a feeling of incompetence. Therefore, it is vital to involve the team in the analysis. Insight in the team's actual performance, combined with actual solutions will allow the beginning of an internalized sense of why the transition is happening.

Often, the analysis will show a poorer performance than team members envisaged. There may be some finger-pointing to other teams that are deemed to be the cause of the poor performance of the team being analyzed. The team leader must help to manage the negative feelings or shock towards carrying out improvements and taking control of the team's situation.

Team Level – Step 3: Implement
The Analyze step is always slightly longer than strictly necessary to ensure that the team is ready to make improvement steps in the Implement step. The Implement step is about embedding *helping others to develop* and daily Kaizen in the team.

In parallel with appointing a Lean Coach, it is also a good idea to identify individuals within teams having a personal interest in and passion for Lean. These persons should become a Kaizen Lead through deeper Lean studies and practice. The Kaizen Lead will often be called upon to facilitate Improvement Kaizens and support the selection of Kaizen initiative from the improvement board.

7.6 Detailed Planning

As we have seen, it is important to be clear on what is going to happen. Some people only need a vague roadmap, but the majority of people gain confidence from a detailed plan on which the transformation is based.

As with any plan, the value of the plan is created more in the planning process than in the plan itself. The team should be presented with a detailed plan that is input for a further planning session together with the team. This detailed planning process works for both the leadership team and for the technical and support teams.

The aim of the planning session is to enlist the cooperation of the team in planning their own transformation. The planning session gives the team a measure of control, which will ensure more buy-in for the transformation. Always communicate that the detailed plan for the transformation is just the beginning of Lean working. After the Lean Leadership and Lean Transformation phases, it is up to the team to identify what help they need to further improve their performance and capabilities.

Below is an example of a plan for Lean IT Leadership. The details (not included) will define exactly when each of the activities will take place and who is involved.

	Week 1	Weeks 2-3	Weeks 4-5	Weeks 6-7	Weeks 8-9	Weeks 10-11	Week 12
	Lean Leadership						
Learning	Lean Bootcamp	Deep Dive Lean Principles	Deep Dive Kaizen	Deep Dive Performace Dialogue	Deep Dive Flow	Deep Dive Motivation & Habits	
Seeing		Gemba Walk: Customer Gemba Walk: Waste	Gemba Walk: Inflexibility	Gemba Walk: Motivation Gemba Walk: Waste	Gemba Walk: Variability	Gemba Walk: Habits Gemba Walk: Waste	Gemba Walk: Lean Team
Doing	Change Story	Set Direction KPIs	Visual Mgmt Improvement Board	Visual Mgmt Start Performance Dialogue	Visual Mgmt Day Start Performance Dialogue	Engage in Kaizen Performance Dialogue	Engage in Kaizen Performance Dialogue

Figure 17: Example of a plan for introducing Lean IT Leadership

The Lean IT Transformation plan for a team should be based on the five Lean dimensions as presented in the EXIN Handbook Lean IT Foundation. These dimensions provide a clear basis for *why* activities are carried out. It is important to show the team that the analysis and implementation cover all aspects of Lean IT, which helps improve the confidence of the team. It also helps the team to realize that, although it seems like there is a lot of work to be done, the work is spread out in an achievable way within the timeframe set for the analysis and implementation.

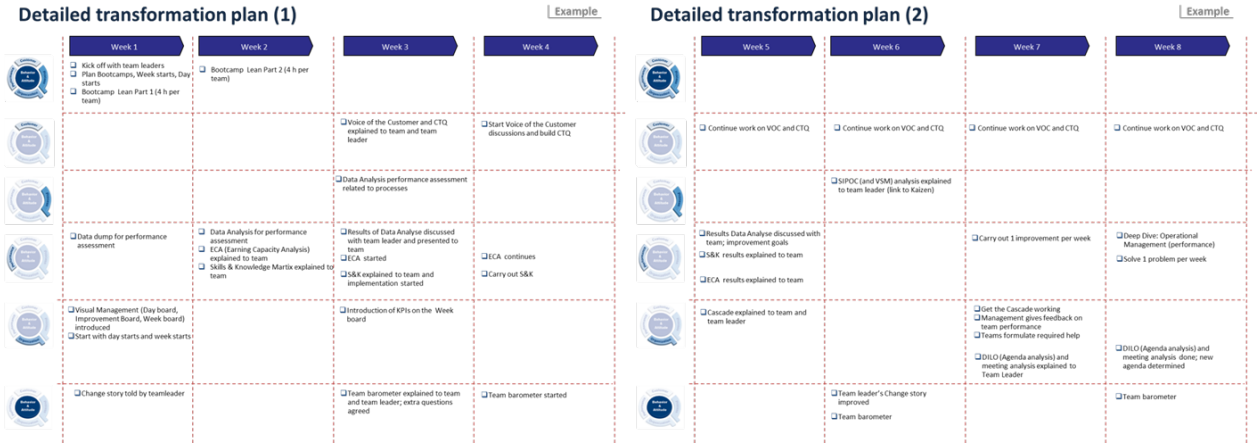

Figure 18: Detailed Lean IT Transformation plan

7.7 Top Down or Bottom Up

One of the questions most frequently asked is whether the transformation to Lean should be bottom up or top down.

Initially, when being introduced to Lean, much emphasis is laid on the devolution of responsibility and authority to the work floor. In addition, we look more to employees to provide solutions to problems and ask them for initiative. A detailed plan guiding both the overall organizational transformation and the transformation of individual teams seems to contradict the bottom-up power of Lean.

It is important to communicate that Lean, and Lean IT, has always been a **combination of both styles**. In essence, the transformation comes from the top and improvement initiatives come from the bottom-up aspect. Both lead to a combined drive to improve the quality and performance of the IT organization. One cannot do without the other.

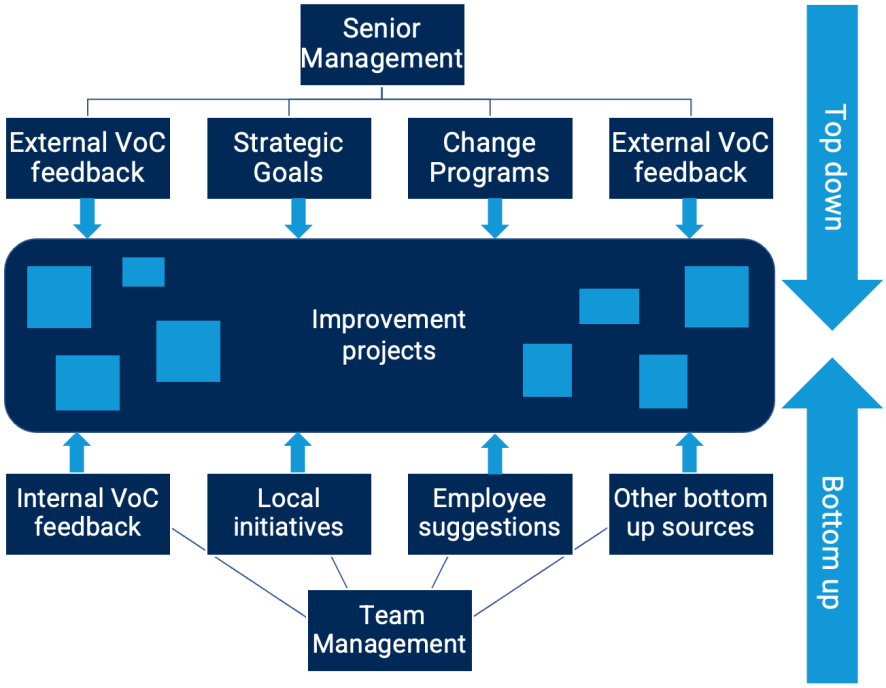

Figure 19: Top-down and bottom-up improvement initiatives

As the figure above shows, the top-down and bottom-up aspects principally ensure that improvements are identified from both directions, thus ensuring a steady stream of improvement projects to be carried out.

It is important to realize that because of the combination of styles, it is impossible to start the Lean transformation without buy-in from both higher management and employees.

7.8 End of the Transformation

Lean IT is a powerful way of improving the quality and performance of IT organizations. As we have seen throughout this handbook, the role of leaders and leadership is crucial for ensuring that IT organizations increase their ability to meet the requirements of their customers, employees, suppliers and, possibly also, regulators of the sectors they work in.

The model for Lean IT Leadership development clearly shows that there is no end to the development of leaders within the IT organization. There must be a continuous cycle of people development in which new leaders are stimulated to acquire and hone their skills, whether they end up in a management position or not. Technical leadership requires the same skills.

As for the transformation of your IT organization, we have seen that there are three broad phases that can be identified (know what, know how, know why). Particularly the first two phases require substantial dedication and persistence. The aim is to achieve the third level in which Lean becomes your standard way of working. Does this mean that the transformation is completed? The transformation is completed when no more improvements can be made.

Appendix A: A3 Thinking

The following section is an edited extract from the EXIN Handbook Lean IT Kaizen.

One of the powerful tools that Toyota has institutionalized within Lean is working with A3 reports. It supports and promotes continuous improvement and is based on the PDCA cycle.

A3
A3 simply refers to the size of a piece of paper. A3 is 29.7 cm by 42 cm (11.7 in by 16.5 in). It is twice the size of A4 and half the size of A2. The beauty of the A3 sheet is that it provides enough space to explain a relatively complicated story but limits the writer in their verbosity. The aim of the A3 is to encourage conciseness in the communication of a message. It also works as a checklist to ensure strict adherence to the chosen problem-solving methodology, in our case DMAIC.

It is important to understand that there is no hard and fast way to complete an A3 problem-solving sheet. Most A3 sheets tend to have 7 or 8 sections, as we will see below. However, if you wish to have 5 sections focusing on DMAIC, then this is acceptable. It is important that the problem-solving A3 covers the complete PDCA cycle. The key determinants for a good A3 sheet are:

- Does it help the team compiling it to follow a structured problem-solving method?
- Does it help people who need to take action on the outcome, to understand the logic that led to the outcome?

Contents of a Problem-Solving A3
Let us start with a basic much-used version of the A3 problem-solving sheet. It includes the following elements:

- Background. In this section, the context in which the problem exists is described. This may include a brief history of the IT organization or department in which the problem exists. The background section will include a description of the problem.
- Current Condition: Here we describe the current condition surrounding the problem. This may include complications that cause the problem to remain in place.
- Future State Goals. This is a description of the way the situation should be if the problem did not occur. Preferably, we should be able to define in concrete terms what would happen if the problem no longer existed. 'Concrete' may even mean setting a numerical target that should be achieved as a result of the resolution of the problem.
- Analysis. This section includes a short description of the analysis that was done in trying to work out what the root cause of the problem was.
- Proposed Options: Here we find the list of possible solution candidates to the problem.
- Plan / Improvement: This is where the improvements to be implemented are described and a brief plan is created for their implementation.
- Follow-Up. After the chosen solutions have been implemented, there must be one or more follow-up actions to ensure that the adopted solution remains in place. There must at least be one action to inform others of the lessons learned from the problem-solving action and/or to communicate the solution to other parts of the organization where they may be suffering from the same issue.

The associated A3 may look like this:

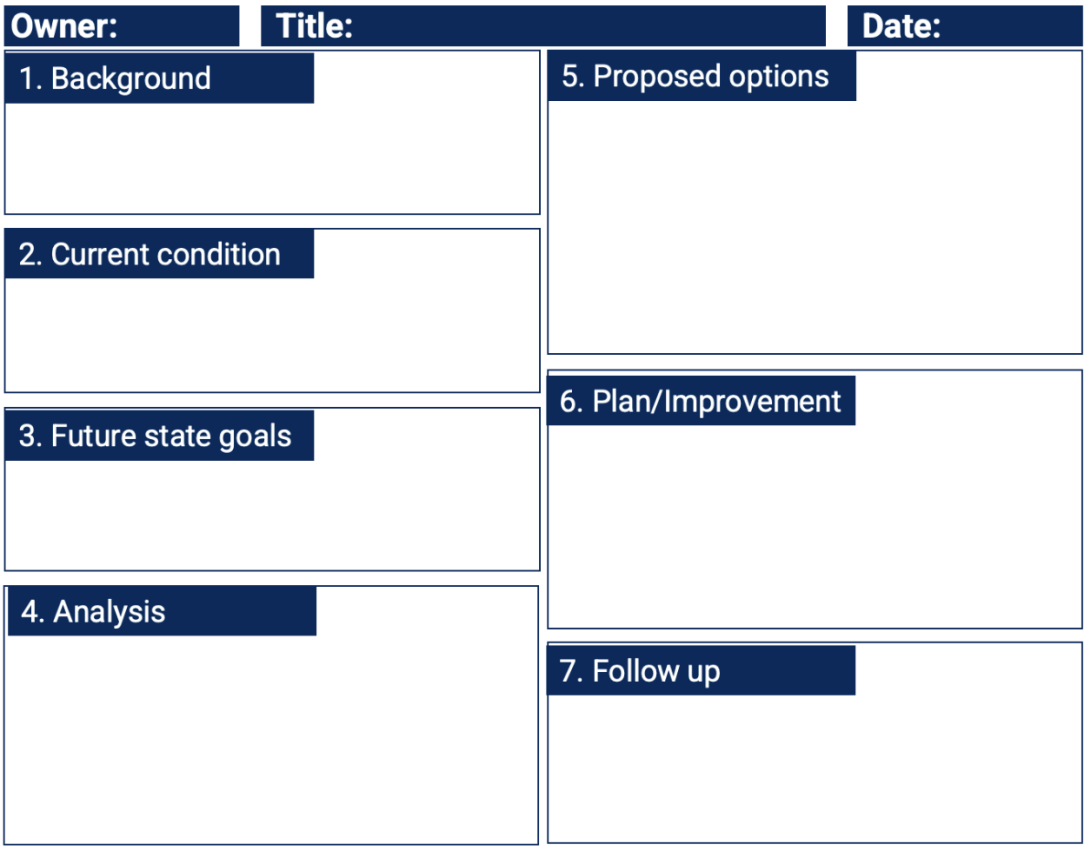

Figure 20: Example of an A3

In their book 'Understanding A3 Thinking', Sobek and Smalley describe two other forms of A3 report: the A3 Status report and the A3 Proposal report. These are again variations on the above themes, but with different goals.

A3 Status Report
The A3 status report is aimed at informing all stakeholders of the progress of the execution of a longer-running project or action. This type of A3 is not so much focused on analysis, rather it aims to continually check whether the assumptions made continue to be correct and ensure that it is clear which actions need to be taken. An A3 status report will tend to focus on the Check and Act aspects of the PDCA cycle.

The key components of the A3 status report are:

- **Background**: in this section, the context is described. This may be a concise version of the problem-solving A3 for which the A3 is a status report.
- **Current Conditions**: Here, the progress of the project is described. The changes that have already been made are described.
- **Results**: This is the key section of an A3 status report. The current conditions are the consequence of actions taken. These actions have led to results. It is the results on which the decisions are taken whether to continue and, if so, which course of action to take.
- **Remaining Issues/Action Items**: The A3 status report ends with the upcoming actions. These may be based on issues encountered during the process of getting to the current condition or they may be actions based on the original plan.

The A3 status report is an important document to support the learning process within the organization. Each status report must lead to some kind of reflection, with lessons learned that

lead to action. In this way, the A3 status report is embedded into the daily Kaizen and enhances the continuous improvement mindset.

A3 Proposal
The A3 proposal is used for creating a recommendation for action. Generally, the A3 proposal will be aimed at implementing new policy or for carrying out a project that entails substantial investment of time and/or money. This A3 report focuses principally on the Plan phase of the PDCA. It will also describe how the Check and Act phases need to be carried out (i.e. it should indicate how the proposal will be monitored as it is being executed and after it has been implemented).

The A3 proposal report is more similar to the A3 problem-solving report.

- **Background**. As with the A3 problem-solving report, this section includes the context within which the proposal is being written.
- **Current Condition**: This is the key section of this A3. It should be clear from this section why the proposal needs to be made and why it is important to seriously consider its execution. The main issues must be clear to the reader.
- **Proposal**. This is a description of the proposed course of action.
- **Analysis/Alternatives**. This section is all about the business case for the proposal.
- **Plan Details**: In this section, the reader is given the details of what will be involved with carrying out the proposed change. It is vital that stakeholders, necessary resources, and consequences are made clear.
- **Unresolved Issues**: in this section, issues that are not (sufficiently) addressed that may have an impact on the execution of the proposal, are dealt with. In essence, these are risks that may affect the proposal.
- **Implementation Schedule**. This is a high-level plan of how the proposal would be implemented

In all cases, the text in an A3 must be created in such a way that the audience clearly understands what problem has been solved, what the status is of a particular project or what the proposal is. The A3 must be written from the perspective of the reader!

Skills for Completing an A3
Using A3 reports requires practice. There are skills that need to be acquired and honed to ensure that an A3 becomes a powerful tool.

In order to ensure the information in the A3 is accurate, there are four skills that must be practiced:

- **Summarize**: The first key skill is the ability to express thoughts, facts, and other information concisely. Although an A3 sheet looks quite large when it is blank, the act of filling it with the relevant information can be quite a challenge. It is vital, therefore, to stick to the information that has a direct bearing on the issue at hand, be it a problem, a proposal or a status. In order to summarize, we need the two other skills.
- **Analyze**: Analysis is part of most A3 reports in some form or other. What does it mean? The aim of analyzing is literally to separate something into its constituent parts or elements. It is vital when writing an A3 report to understand the parts of the problem so that only the right information is given. If we are able to discern the parts of a problem, we can also determine which of these parts are relevant to the reader.
- **Synthesize**: The opposite is also true. One of the best ways of summarizing is by combining parts or elements. The ability to Synthesize can be defined as combining a number of disparate elements to make a coherent whole. This is important when the parts do not immediately appear to have individual relevance to the issue.
- **Visualize**: Once we have analyzed, synthesized and summarized, we need to tell a story succinctly. In line with the 'a picture tells a thousand words' adage, it is strongly recommended (by all authors on the subject of A3) to turn your story into a visual experience using pictures and graphics to explain what has been investigated and what is proposed as a solution.

References

Bell, S. et al (2017). *Run, Grow, Transform.* CRC Press. ISBN: 978-1466581081

Collins, J. (2001). *Level 5 Leadership: The Triumph of Humility and Fierce Resolve.* Harvard Business Review

Duhigg, C. (2013). *The Power of Habits.* Random House Books. ISBN: 978-1847946249

Feser, C., Mayol, F. & Srinivasan, R. (2015). *Decoding Leadership: What really Matters.* McKinsey Quarterly.

Gawande, A. (2011) *The Checklist Manifesto*. Profile. ISBN: 978-1846683145

Katzenbach, J.R. & Smith, D.K. (2005). *The Discipline of Teams.* Harvard Business Review

Kotter, J. (2007). *Leading Change: Why Transformation Efforts Fail.* Harvard Business Review

Lencioni, P. (2002). *The Five Dysfunctions of a Team.* John Wiley & Sons. ISBN: 978-0787960759

Lewis, R. & Parker, C. (1981). *Beyond the Peter Principle: Managing Successful Transitions.* Vol 5 Issue 6. Journal of European Industrial Training.

Liker, J. & Convis, G. (2011). *The Toyota Way to Lean Leadership.* McGraw Hill Publishing. ISBN: 978-0071780780

Liker, J. & Trachilis, G. (2014). *Developing Lean Leaders at all Levels.* Lean Leadership Institute Publications. ISBN: 978-0991493203

Minto, B. (2021) *Pyramid Principle.* Prentice Hall. ISBN: 978-1292372266

Pink, D. (2018). *Drive.* Canongate Books Ltd. ISBN: 9781786891709

Sobek, D.K. & Smalley, A. (2008). *Understanding A3 Thinking*. Taylor & Francis Inc. ISBN: 978-1563273605

Glossary

Term	Description
5S	A set of hygiene rules that help to, for lack of a better word, clean up processes and workplaces.
A3	Refers to the size of a piece of paper that provides enough space to explain a relatively complicated story but encourages conciseness in the communication of a message.
A3 Problem-solving Report	The A3 problem-solving report is a document informing all stakeholders of the results of an improvement kaizen.
A3 Proposal	Is an A3 report used for creating a recommendation for action.
A3 Status Report	The A3 status report is aimed at informing all stakeholders of the progress of the execution of a longer-running project or action.
Accountability	Being prepared to offer an explanation for attitude, behavior and actions, without necessarily being asked.
Analysis	To separate something into its constituent parts or elements.
Andon	Literally, this is a signal. An Andon System or Cord is one of the principal elements of the Jidoka quality-control method pioneered by Toyota as part of the Toyota Production System and now part of Lean. It gives the worker the ability, and empowerment, to stop production when a defect is found, and immediately call for assistance.
Application Development	A function within an IT organization in which software products ('applications') are created.
Baseline	Baselines and benchmarks are necessary to understand the relative value of the performance. A baseline is the measurement of a situation in order to understand whether a change occurs based on an intervention after the baseline has been set. This is particularly useful in Kaizen because we are very interested in the effect of changes that have been implemented in the IT organization. It is vital that during the Measure phase a baseline is set that can be used to measure progress.
Cascade	A mechanism that involves aligning meetings, so that the information shared in one meeting can quickly be brought to a different meeting in which the information is needed.
Catch-Ball Communication	A method of idea generation and sharing based on the communication of goals through the organization's hierarchy.
Change Story	A clear description of which changes need to be made and why: the change story gives direction. In the change story, the motivation behind the desire to change is described.
Closed Loop Thinking	This considers how changes within the system ripple across the value stream, affecting the work and behavior of other employees in the same department, in other departments, external customers, suppliers, and other stakeholders.
Configuration Management Database (CMDB)	A repository that acts as a data warehouse for information technology (IT) organizations. Its contents are intended to hold a collection of IT assets that are commonly referred to as configuration items (CI), as well as descriptive relationships between such assets.
Constancy Of Purpose	Principle (from Deming / Shingo Model).
Continuous Improvement	Ongoing process in an organization with the objective to find, resolve and share solutions to problems. The objective is to achieve perfection, in other words to improve value streams, product and customer value. A philosophy of frequently reviewing processes,

	identifying opportunities for improvement, and implementing changes to get closer to perfection.
Cross-Functional Alignment	Share common objectives, make appropriate prioritization, and resource allocation decisions that add value to the customer across a value stream that goes through multiple functional areas.
Customer	The person or group of people who use your product or service OR the person next in line in the value stream.
Customer Value	A person who buys, uses, or derives value from a product/service. Only the ultimate customer defines value. The person 'next in line' is referred to as a 'partner in the value stream', or an 'internal' customer. A capability provided to a customer at the right time at an appropriate price, as defined by the customer. The more a product or service meets a customer's needs in terms of affordability, availability and utility, the greater value it has. Thus, a product with true value will enable, or provide the capability for, the customer to accomplish his objective.
Daily Kaizen	The act of responding to everyday occurrences such as incidents, mistakes and other quality issues and addressing quality issues at the source rather than being satisfied with quick fixes.
Day Board	This is the board used to share information and updates within the team. The Day board is used during the Day start (also Kanban Board); an element of Visual Management.
Definition Of Done	The description of the completed product in the form of a simple list of activities (writing code, coding comments, unit testing, integration testing, release notes, design documents, etc.) that verifiably add value to the product
DevOps	DevOps is a solution that derives its effectiveness from the integration of a number of critical areas: process, organization, performance, behavior and attitude and automation.
DMAIC	An acronym for the five steps in problem solving with Kaizen, i.e.: Define, Measure, Analyze, Improve and Control.
Dynamic Thinking	This is about creating a vision for the near or distant future. It aims to increase understanding of what has happened, what is happening and identifying what may happen in the future.
External IT Organization	An IT organization that is its own enterprise providing specific services to a variety of customers.
Five "Whys"	A root-cause analysis tool used to identify the true root cause of a problem. The question "why" is asked a sufficient number of times to find the fundamental reason for the problem. Once that cause is identified, an appropriate countermeasure can be designed and implemented in order to eliminate re-occurrence.
Flow	The smooth, uninterrupted movement of a product or service through a series of process steps. In true flow, the work product (information, paperwork, material, etc.) passing through the series of steps never stops.
Flow Efficiency	Efficiency based on processing a unit of work through the IT organization in the most efficient way.
Gemba	The place where the work is done. Within a Lean context, Gemba simply refers to the location where value is created.
Genchi Genbutsu	This means going to the Gemba to observe what is happening without judging.
Ha	The second phase of the Shu-Ha-Ri learning cycle, is about diverging from routines, based on full understanding of the Kata.
Habit	A routine or behavior that is executed automatically based on a trigger or cue.

Holistic Thinking	This means understanding the interconnectedness of the aspects of larger systems.
Horizontal Alignment	See “Cross-Functional Alignment”
Hoshin Kanri	A cyclic planning and management concept applied at the strategic level to achieve breakthrough objectives, and at the day-to-day level to manage the operation to keep the business running.
Humility	Having a clear perspective and respect for one's place in context. The concept of humility addresses intrinsic self-worth, relationships, and socialization as well as perspective.
Improvement Board	A board that presents current problems and the follow-up to resolving or addressing that problem (also Kaizen Board); an element of Visual Management.
Improvement Kaizen	Carrying out Kaizen events to bring about incremental change. It is often referred to as Kaizen.
Incident	An unplanned interruption to an IT service or reduction in the quality of an IT service. Failure of a configuration item that has not yet affected service is also an incident.
Internal IT Organization	An IT organization operating within an enterprise, providing a wide range of IT services to that enterprise.
Ishikawa Diagram	The Ishikawa diagram identifies many possible causes for an effect or problem. It can be used to structure a brainstorming session.
IT Operations	The functional area of IT responsible for the production environments and all activities associated with these environments.
Jidoka	Creating an environment in which disturbances to the flow of work through the value streams are made visible, i.e. problems are not left covered up.
Kaizen	An improvement philosophy in which continuous incremental improvement occurs over a sustained period of time, creating more value and less waste, resulting in increased speed, lower costs and improved quality. When applied to a business enterprise, it refers to ongoing improvement involving the entire workforce including senior leadership, middle management, and frontline workers. Kaizen is also a philosophy that assumes that our way of life (working, social or personal) deserves to be constantly improved.
Kaizen Board	See “Improvement Board.
Kaizen Mindset	There must be a belief throughout the IT organization, both among managers and employees, that improving IT services and the way they are delivered can and must be done on a daily basis.
Kanban	When taken literally, this means a signal. Kanban is a scheduling system for lean and just-in-time (JIT) production. Kanban is the embodiment of the pull/replenishment system
Kanban Board	A Kanban board is a workflow visualization tool that enables team collaboration focused on monitoring the flow of work. Physical Kanban boards often use simple work records like sticky notes on a whiteboard to communicate status, progress, and issues.
Kata	When taken literally, this term means ‘form’. The defined routine for thinking and acting in a particular situation.
Leader Standard Work (LSW)	The standards that can be found in a leader’s work. LSW helps to identify where issues and deviations are happening in the leader’s work.
MECE	The acronym for Mutually Exclusive, Collectively Exhaustive. Mutually Exclusive means that all items in a particular category only belong to that category, and no other. Collectively Exhaustive means that all possibilities have been covered.
Muda	A Japanese word for waste. See “Non-value-added” and “Waste”.

Mura	A Japanese word meaning unevenness; irregularity; lack of uniformity; variation.
Muri	A Japanese word meaning overburdened, unreasonableness; excessiveness. Often related to policy-based waste.
Nemawashi	The informal process of laying the foundation for a decision, change or project.
PDCA Cycle	Plan, Do Check, Act is a well-known continuous improvement method often referred to as the Deming Circle. The PDCA cycle is applicable in any situation, and forms the basis for all improvement within Lean.
Performance Dialog	The aim is to ensure a structured and objective discussion of performance. These discussions consist of three elements. A performance dialog defines an objective, offers support, and evaluates achieved results. Examples are Performance Dialog between manager and employee and week and day starts.
Performance Indicator	Measure that gives a visual representation of a defined performance.
Plan-Build-Run	This is the short description of the basic functions/activities of an IT organization.
Principle	An accepted or professed rule of action or conduct.
Pyramid Principle	Developed by Barbara Minto. The Pyramid Principle is a method that is fully compatible with A3 thinking. In fact, it helps to structure the information and insights gained during the kaizen event. The problem is framed using the following framework Situation-Complication-Key Question-Answer
Resource Efficiency	An efficiency measure based on how much work is completed by an IT employee.
Ri	The third phase of the Shu-Ha-Ri learning cycle, is about transcending routines, based on mastery of the Kata.
Sensei	When taken literally, this term means 'teacher'. A coach within the Lean context.
Service Desk	The customer contact center of an IT organization.
Service Manager	A role or function responsible for ensuring that a defined IT service is delivered to the customer.
Shu	The first phase of the Shu-Ha-Ri learning cycle, is about 'automating' routines. Learning the Kata and developing positive habits.
Shu-Ha-Ri	A Lean learning cycle. It is a model of learning based on the Kata. The process of self-development is guided by the principle of Shu-Ha-Ri.
SIPOC	This acronym means Supplier, Input, Process, Output, Customer. It is a diagram used to establish the Kaizen project team, create the project charter and planning, get stakeholders' support and start the project.
Skills & Knowledge Analysis	Skills and knowledge analysis is used to steer team development to meet skills demand. The objective is that team skills are aligned with the customer demand for those skills.
Solution Matrix	A matrix in which solutions can be plotted according to two axes: feasibility and anticipated cost.
Standard Work	A collection and implementation of the best practices known to that point.
Systemic Thinking	A principle that unifies all the other principles of operational excellence and enables companies to sustain their Lean culture and develop a constancy of purpose centered on continuous improvement.
Team	A small number of people with complementary skills who are committed to a common purpose, set of performance goals, and approach for which they hold themselves mutually accountable.

Transformation	A change in form, appearance, nature, or character. Used to define the overall process of moving from a traditional IT organization to a Lean IT organization.
True North	The important and constant focus that organizations should have on value.
T-type Leader	The combination of deep understanding of a technical area supplemented by broad knowledge of leadership and IT service delivery.
Value Stream Map (VSM)	A technique used to analyze the flow of materials and information currently required to bring a product or service to a consumer. A visual representation of all of the process steps (both value-added and non-value-added) required to transform a customer requirement into a delivered good or service. A VSM shows the connection between information flow and product flow, as well as the major process blocks and barriers to flow. VSMs are used to document current state conditions as well as design a future state. One of the key objectives of Value Stream Mapping is to identify non-value adding activities for elimination. Value Stream Maps, along with the Value Stream Implementation Plan are strategic tools used to help identify, prioritize, and communicate continuous improvement activities.
Vertical Alignment	Ensures the goals of all stakeholders, from the boardroom to work floor, are aligned; goal setting and review, goals are set and adjusted so they continue to fit.
Visual Management	Visual management concerns the use of displays, metrics and controls to help establish and maintain continuous flow and giving everyone a view of the work along the value stream. Its aim is to ensure transparency and understanding of the situation.
Voice Of The Customer	Term to describe the in-depth process of capturing a customer's expectations, preferences, and aversions with the objective to create products or services that that meet the customer's needs and preferences.
VSM	See "Value Stream Map".
Wave	A phase in the Lean IT transformation in which one or more teams are helped through a step in the transformation.
Week board	A board used to share information about the team's performance over the previous week, and objectives for the coming week; an element of Visual Management.

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