

The Lean English Podcast

Episode 1: Process Improvement Comparison



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WITH TOM SICOLA



1. Episode 1: What are the differences between Lean, Six Sigma and Agile?

Welcome to the first episode of The Lean English Podcast. My name is Tom and I will be your host. Thank you for joining me. I created this podcast to give English learners something different to listen to. You will see throughout these episodes that I try to combine two lessons at once; an English **comprehension** lesson and a business lesson covering management tools that may help your company or your career. After a brief introduction today, our first episode will try to answer a question that I get all the time; what are the differences between Lean, Six Sigma and Agile. So, grab a cup of coffee and a pen, and let's get started.

Commented [TS1]: Comprehension: the ability to understand completely and be familiar with a situation, facts, etc.

2. Now for a brief introduction. I am an American, but I currently live in France. I have been studying French as a second language for many years and found that podcasts are a great way to learn French pronunciation and new vocabulary. Since moving to France, I have worked as an English teacher, started a consulting company, Lean English Consulting, and now, The Lean English Podcast. But English is not the only thing I hope you will learn during these episodes. I will also introduce you to best practices in manufacturing, process improvement, software development, and quality management. This podcast is designed to get your English and your business in good shape. Perhaps you are a business owner or manager in an international company who needs help solving complex problems. Or maybe you are just curious about business in general. I want to introduce you to some new ideas so you can take these insights and use them to improve your productivity, efficiency, quality and effectiveness.

3. Lean English Consulting is a training company that specializes in teaching Lean, Six Sigma, Agile and Systems Thinking in English. We are based in Brest,

France, and we opened our doors in 2024. “We opened our doors” is another way of saying, “We started the business.”

As far as **credentials** are concerned, the company is Qualiopi certified so, if you live in France, you can use your CPF to fund any of our courses.

Commented [TS2]: Credentials: the abilities and experience that make someone suitable for a particular job or activity, or proof of someone's abilities and experience

Personally, I have been working as an English teacher for the past 2 years. I have a bachelor's degree in English; a master's in business administration and a TEFL (Teach English as a Foreign Language) level 3 certification. And when I worked in the United States as a business consultant for more than 12 years, I acquired Lean Six Sigma Black Belt and Agile Scrum Master certifications.

4. We offer one-to-one classes online or in person. Don't worry; not all of our students are business professionals. We have normal English language classes as well. In those classes, we discuss grammar, pronunciation and vocabulary. If you love to travel, we focus on how to ask questions when you are travelling, how to reserve a table at a restaurant, things like that. If you love poetry, we focus on understanding **subtext**, **metaphors** and rhyming schemes. And if you want to understand American cinema, we will work on your oral comprehension so you can understand common phrases and slang.

Commented [TS3]: Subtext: a hidden or less obvious meaning

Commented [TS4]: Metaphor: an expression, often found in literature, that describes a person or object by referring to something that is considered to have similar characteristics to that person or object

And we cater to the needs of your business. If you are a company that uses English daily, we can tailor our **immersive** training program for your employees that fit their level of language and business knowledge. And after the training is completed, we can return and mentor your group through a process improvement project.

Commented [TS5]: Immersive: seeming to surround the audience, player, etc. so that they feel completely involved in something

5. So, why another Podcast? I know. There are a ton of podcasts already. But as someone who is learning French, I use French language podcasts quite frequently to improve my oral comprehension. And I noticed that while I am listening, I am also learning something interesting as well. So, I suspect that someone out there who is learning English may also want to learn some

techniques that will help them improve their business. Most of the subject matter will be about Lean, Six Sigma, Agile and Systems Thinking. These are process improvement methodologies used by the most profitable companies in the world.

Here is how to use the podcast to learn English. There are four skills to using a language – oral comprehension and production, and written comprehension and production – and this method improves them all. Listen to each episode the first time without subtitles, trying to understand what you are hearing. Take notes and mark the times when you need help. Review the transcript, research the definitions and new grammar online, and then listen to the podcast a second time. Using these new words or grammar, create a short, one-minute story about your life. It should be a story that you know well and repeat often during your conversations. Then record an audio file of the story on your phone with your own voice, concentrating on shadowing my pronunciation. Listen to it often and repeat it during your next conversation. Add what you have learned to a flashcard set like Quizlet and test yourself every few days. You will not only pick-up new words and grammar, but you will understand them when they are spoken or written and develop the confidence to actually use them in conversations and in writing. And that's it. You're good to go.

Commented [TS6]: www.quizlet.com

And for our listeners who love to travel and need to hear conversations from people with different accents, I will post some interviews with native English speakers from all over the world.

6. Now I want to talk about you, our target audience. I envision four types of people who may be listening right now, for whom we created this podcast.

We've got "Skeptical" Scott, a business manager who uses English at work, but fears change. Some colleagues have told him about Lean, Six Sigma and

Commented [TS7]: skeptical: doubting that something is true or useful

Agile, but he doesn't know if he will change things at work until he learns more.

Then there's "Debutante" Donna, who just started learning English and needs a lot of comprehensible input. It is for Donna that I speak so slowly.

Next, we have "Crying" Christine. She is not getting any help at work and desperately needs tools to reduce her redundant tasks. Just keep listening, Christine. We will show you some Lean tools soon that will make your job a lot easier.

And last, we have "Pirate" Pete, who was hurt recently on the job because his manager did not implement proper safety procedures. He is looking to change jobs, and we are here for him. Let's go, Pete. Learn English, master some process improvement techniques and find a new place to work. We're rooting for you, buddy.

7. A quick disclaimer before we move on. Most of the information I will share will be from my studies and my own experience working as a Lean Six Sigma Black Belt, Scrum Master and Quality Manager. Yes, I have acquired certifications, but no, I don't know everything. And I am not claiming to have discovered any of these ideas or tools, so where I can, I try to credit those who did. This podcast is also not intended for native English speakers or to be used as a study guide for someone preparing for a certification exam. This is for novice English learners and businesspeople who are new to process improvement. Because of this, for the first four episodes we will be reviewing these topics at a very high level. So, if I leave something out, it is because there is just not enough time to cover everything. We hope to eventually do some deep dives, but not at this point. And I suspect that the subjects will evolve over time. I hope you will reach out to me and let me know what subjects interest you the most so I can cover those. Also, don't

Commented [TS8]: Debutante: a rich young woman who went to a number of social events as a way of being introduced to other young people of high social rank. But here I am using it as in French: A person who is beginning to learn or practice an activity or a trade.

Commented [TS9]: Disclaimer: a formal statement saying that you are not legally responsible for something

Commented [TS10]: Deep dive: a detailed examination of a subject

listen to one or two episodes and start to make drastic changes in your business. These are ideas that require much more investigation before they can be implemented. When implemented properly, they can turn around your business. But there are some poor implementations as well that have been disastrous to businesses, so perform your own investigation first before changing things. Okay, now that that's over, let's get back to the program.

8. Now for a brief history lesson. Here is a timeline of some of the major discoveries that have shaped modern process improvement methods. Lean, Six Sigma and Agile have developed over many decades through the influence and discoveries of many important individuals.

9. In 1911, Frederick Taylor publishes *The Principles of Scientific Management* (Taylor, 1911). This ground-breaking work contrasts the old rules that were created during the industrial revolution with the new scientific methods that were being developed by the first process engineers. In 1913, Henry Ford creates the assembly line for mass production of automobiles. This greatly influences industrial practices and is still used today. In 1924, Walter Shewhart publishes papers on Statistical Process Control. These charts are some of the first examples of using probability and statistics to understand how variation influences quality.

10. In 1926, Sakichi Toyoda starts the Toyoda Automatic Loom Works company. Sakichi Toyoda was able to create looms that would stop production if an error occurred. This is significant because the principle of no defects laid the groundwork for the Toyota Production System (TPS), which is commonly known as Lean. In 1933, Kiichiro Toyoda follows Ford's lead and begins full scale development of automobiles. This is the start of the Toyota motor company. In 1941, companies in the United States, with the help of the government, develop Training Within Industry (TWI) to improve

manufacturing efficiency during World War II. TWI is a philosophy and guide on how companies should hire and train their workforce.

11. Starting in 1950, W. Edwards Deming begins promoting statistical inference and Plan-Do-Study-Act (PDSA) in Japan. Deming was asked to visit post-World War II Japan to help revitalize their industry, and he taught many professionals from the Union of Japanese Scientists and Engineers (JUSE) on the benefits of scientific management. A few years later, Kaoru Ishikawa translates, integrates and expands on Deming's concepts. The engineers from JUSE take these lessons to heart and Japanese manufacturers start experiencing unprecedented levels of quality. In 1984, Eliyahu Goldratt publishes *The Goal* (Goldratt, 1984), outlining the Theory of Constraints, a process improvement method that is much easier to implement. I highly recommend this book for new learners because it provides simple, relatable explanations for many Lean principles.

12. In 1986, engineers at Motorola found the Six Sigma Institute. These engineers are the first to **codify** what constitutes a Six Sigma project and further promote probability and statistics in quality project management. And in 2001, The Agile Alliance sign *The Agile Manifesto* (Beck, 2001). After years of using traditional project management plans to develop software, 17 experts signed their names to this document, outlining how a new type of project, based on Lean principles, would greatly benefit the development community.

13. Now that our history lesson is complete, let's start comparing these different methods. First, we will discuss Lean.

14. Lean is hard to define because it **encompasses** so many things. It is a philosophy and mindset for doing business. It is a management tool for understanding processes and worker performance. It is a map for businesses

Commented [TS11]: Codify: to arrange something, such as laws or rules, into a system

Commented [TS12]: To encompass: to include entirely

to follow, starting with their customer order and ending with product delivery. It is a set of tools that everyone in the organization can use to improve the company's performance. It is a history lesson, showing businesses that benefits can be discovered with creative problem solving and daily progress leads to great advantages over time.

Lean is most useful when you are interested in reducing waste and generating flow in your processes. There are eight forms of waste that we will discuss in future episodes. But for our purposes today we can define waste as any activity that does not add value to the product. Removing waste and creating flow can be very powerful advantages for a company.

Lean is also built around a philosophy called *Kaizen*, which is the idea that daily, incremental improvements will lead to massive gains over time. This is a big difference from Six Sigma that relies on projects that take a long time to show improvements.

Lean is not very useful for very complex problems because it does not have the infrastructure for prolonged experimentation. Any root causes to your problems need to be identified through brainstorming sessions and PDSA.

Another benefit to Lean is that there is a low level of technical expertise that is required for implementation. It can still be a challenge, and the change can be hard for some people to accept, but it does not require extensive statistical knowledge or computer technology.

Once implemented, however, changes can be seen immediately. The only downside is that the changes may not be large enough for some individuals to get excited about, causing adoption to suffer.

15. Six Sigma is a process improvement method that has five toll-gated phases. This means that, after the work of each phase has been completed,

Commented [TS13]: Incremental: in a series of amounts

Commented [TS14]: Infrastructure: the basic systems and services, such as transport and power supplies, that a country or organization uses in order to work effectively

Commented [TS15]: Toll-gate: a gate on a road or bridge at which you pay an amount of money in order to be allowed to use the road or bridge

there is a meeting to determine if the team has done enough to advance to the next phase. Each phase must prove the answer to certain questions, and if proof is insufficient to completely answer the question, the team must go back to work.

Six Sigma also gives managers tools to carefully track the company's performance and determine where process variation occurs. As Lean fights against waste, Six Sigma fights against variation since it is the main cause of defects. The goal of any company using Six Sigma is to reduce variation to the point that they produce only 3.4 defects per million opportunities. Performance at that level would give a company some of the highest quality products in their market.

As I mentioned earlier, Six Sigma projects take months to develop and produce results, so there are rarely quick wins. The time commitment, depending on the size and complexity of the problem, can range from a few months to a few years. However, the benefit that is produced is normally very dramatic. This makes it easy to recognize and calculate the financial gain, which is not always true with Lean.

Now one reason why companies shy away from Six Sigma is that the level of expertise required to manage these projects is high. It often takes a team of experts to train **leadership** to understand probability and statistics, and to convince them that the company needs to invest money in new technologies. This financial commitment is often a deal breaker. A deal breaker is something that prevents an agreement from happening. In this case, an investment in new technology can prevent a company from implementing Six Sigma.

Now if you look closely at these two methods, you see that they are **complementary**. Where one is strong, the other is weak. That is why we

Commented [TS16]: I use the word "leadership" to mean the leaders of the company, the upper management.

Commented [TS17]: Complementary: useful or attractive together

often see Lean Six Sigma (LSS) represented as one method. When combined, they provide tools for short-term and long-term fixes for complex and simple problems and remove waste and reduce variation. I often recommend that individuals learn about Lean first and then determine if their problems require more tools like those in Six Sigma, but some prefer to study it all at once.

16. Agile is a little different because it is not focused on solving manufacturing problems. Agile is software development in a Lean environment. In the 1990's, software developers used the traditional Waterfall project management structure: Requirements analysis, Design, Implementation, Coding and Testing, and Maintenance. This rigid format required developers to complete all the tasks in one phase before moving on to the next. Problems quickly emerged.

Then Agile was developed using principles taken from Lean. Lean states that the customer defines value. So, in Agile, the customer became a partner in the development process, not an adversary. This shortens the time for contract negotiation and requirement gathering because the client is continually shown the product as it develops. This keeps the client happy because they can inform the team how the product needs to change before it is released.

Commented [TS18]: Adversary: an enemy

Lean states that the worker should be trusted to suggest changes in how the work is completed. So, in Agile, the development team determines how the work will be accomplished and is not required to perform tasks that do not add value to the product. There are many other lessons we will talk about during our Agile episode.

Regarding the level of technical expertise required for implementation, Agile is not complicated to implement, but there are many types of Agile, each

with its own pros and cons. Understanding the differences and choosing which to implement can be confusing for non-technical managers.

And with other project management methods, the timeline for development can vary depending on many factors. But normally projects last months, not days or weeks.

Now that we know the difference between these methods, we will go into a bit more detail about each individual methodology, starting with Lean.

17. This is the end of part 1. Thanks so much for listening. I am mindful that everyone is busy nowadays, so I plan to keep these episodes to around 30 minutes. I decided to cut this episode into two parts because I can't cover everything in that amount of time. Return to this channel for part 2 where I complete the comparison in more detail. You can find the transcript and my contact information at leanenglishconsulting.com. Please reach out to me if you have any comments or questions. And since I write and voice all these episodes myself, a nice rating and subscription to my channel would really help this podcast get off the ground. Okay, until next time be good, and I'll talk to you later.

Commented [TS19]: Nowadays: at the present time

1. Part 2 of episode 1: What are the differences between Lean, Six Sigma and Agile?

Welcome back for the second part of our first episode. As mentioned before, my name is Tom and I am the host and creator of the Lean English Podcast. If you are listening to the podcast for the first time, we have been discussing the differences between Lean, Six Sigma and Agile. In part 1, we went through a short history lesson of some of the major events in the development of these process improvement methodologies and shared some

comparisons. If that sounds interesting, you may want to listen to it first so you will have some context for what I am about to share.

Throughout this second part, I will be referring to graphics that can be found in the PowerPoint presentation for this episode. You can download it at leanenglishconsulting.com or visit The Lean English Podcast channel on YouTube. Now let's take a look at what makes each method work so well, starting with Lean.

2. These are the five focusing steps that businesses follow to develop their Lean Program.

The first step is to Specify Value, and to do this, we need to answer the question, "Who defines Value?" In a company that is using Lean, the customer defines value. A company may believe that they have a great idea for a new product or feature that will sell very well. But if the customer does not find it valuable, guess what? They are not going to buy it. You can see this clearly when you compare variations of the same product that are sold to different markets around the world. A best seller in the United States, the large sport utility vehicle or pickup truck, is almost non-existent here in France where the price of gas is higher and the streets are narrower.

Once value is defined, we can map the production process. What will this map show? It will show all the process steps where value is added, as well as all the waste. We said that waste is any activity that does not add value to the product, but another definition is, waste is any activity that the customer is not willing to pay for. Is the customer willing to pay a worker to install the steering wheel in their new car? Yes. Is the customer willing to pay more for the car because it takes the worker 20 minutes to find their tools, or to fix the steering wheel after they installed incorrectly? No. This means the company

Commented [TS20]: Variation: something that is slightly different from the usual form or arrangement

must pay for all the waste because the cost cannot be passed on to the customer. This is why it is so important to identify and remove waste.

The third step is to establish flow. Well, how is flow established? Flow is established by removing waste because flow is interrupted when there is waste in the system. For example, one of the most prevalent forms of waste is waiting. We have all worked in companies where you must wait for a response to an email, or wait for supplies to be delivered, or wait for someone to finish their meeting so you can get approval for something. Flow happens when everyone is in sync and the product moves smoothly from one value added step to another.

What is pull and why is it important? Pull represents the demand from the customer who is ready to accept the product. If there is no customer demand, then there is no need to create the product. Restaurants don't make food that has not been ordered because that would be wasteful. And in a Lean manufacturing environment, the customer is the next worker in the production process. This marks the difference between an external customer who purchases the final product, and an internal customer who is a worker in the company that receives the unfinished product during production and adds value to it in the next step. If flow is established, it can only be maintained if the next step in the process is prepared to work on the product. Designing the process and training the workers to work together is essential to reducing bottlenecks in the production line.

When does the cycle end? Lean companies are always seeking perfection. Each solution has its own limitations and there is always room for improvement. After one problem is solved, it is time to solve the next problem. This is why Lean companies become so efficient; they continually

Commented [TS21]: Prevalent: existing very commonly or happening often

Commented [TS22]: Sync: moving or happening at the same time and speed as someone or something else

refine their work and improve their quality. This helps them rise above their competition.

3. This is the Lean Diagram. It was published in *The Toyota Way*, by Jeffrey Liker (Liker, 2004). It is a great book that I highly recommend to anyone interested in learning how Toyota became so **dominant**.

Commented [TS23]: Dominant: more important, strong, or noticeable than anything else of the same type

We will speak on this subject in more depth in future episodes, but here is a high-level view of what it means. The Lean building diagram represents Lean's major principles and tools.

The Lean motto is at the top of the building: Best Quality; Lowest Cost; Shortest Lead Time; Best Safety; High Morale; Through shortening the production flow by **eliminating** waste. The targets are highlighted in bold text to show their importance, while the method is in plain text. Best quality will be created when the company's focus is on adding value to their product or service. Lowest cost will be achieved if there is no waste in the process and shortest lead time will be a product of a shortened production flow. All these goals can be achieved if the company follows a Lean philosophy. And they can do it safely and have high morale because it can only be accomplished if the workers are treated as customers. If they are properly trained, supported, motivated and valued as if they were customers, then it will be easy to align their personal goals with the goals of the company. In fact, it is the only way for it to happen.

Commented [TS24]: To eliminate: to remove or take away someone or something

Shortening the production flow and eliminating waste sounds nice, but how is it accomplished? It is far more difficult than it sounds. That is what the other parts of the building identify.

The left column describes the tools used to create a Just-In-Time supply chain. The idea is to provide the right part, in the right amount, at the right time. Not too early, not too late. Maintaining warehouses filled with

inventory is costly and the inventory can become damaged or obsolete over time. This idea works together with production flow to keep the inventory low and the production on time.

The right column is dedicated to the principle of *Jidoka*, ensuring that defects are easily detected before reaching the next station, and that the cause of the defect is identified and fixed without disrupting the production flow.

Some of this depends on attentive workers and managers who understand what quality looks like; some of it depends on customizing smart machines which signal when a non-conformity exists. A non-conformity is just another word for a defect.

In the middle section of the diagram, we see the emphasis on People and Teamwork, Continuous Improvement and Waste Reduction. Hiring the right people helps the company develop teamwork. Lean companies are great places to work, so they can be selective when hiring new staff members. *Ringi* decision making refers to the practice of workers requesting a change in the process from their superiors. As they are the people most intimately involved in the process, their requests are taken seriously. Only companies with well trained workers who share the company's goals can use this practice.

Continuous improvement is a staple of a *Kaizen* attitude; the idea that small, incremental adjustments can eventually lead to massive gains over time. As we saw in the previous slide, the fifth focusing step is to work toward perfection. Even though perfection is never achieved it is always pursued.

It is imperative that everyone in the company work to reduce waste. The company trains all employees to focus on making their job easier and more efficient and gives them license to make suggestions about improvements. Managers are instructed to use *Genchi Genbutsu* to examine their problems.

Commented [TS25]: To disrupt: to prevent something, especially a system, process, or event, from continuing as usual or as expected

Commented [TS26]: Imperative: extremely important or urgent

This is a method of “going to the right place” and observing the processes to better understand what is happening. It is the first step for any problem solving or 5 Whys root cause analysis. Toyota’s managers are required to be present and hands-on during their investigations.

The foundation of the Lean building are four important principles. *Heijunka* requires that all the processes have the same level of work. This enables production to flow easily as there is not one step that takes more time or effort than the others.

Stable and standardized processes create predictable outcomes. They also create predictable products for customers with high expectations. When something does not perform how it has always performed, then managers are alerted to a defect and are prompted to act.

Visual management is a tool Lean companies use to stay updated on production performance and to help workers complete tasks. It is much easier to manage a process or perform a task when there are visual cues everywhere that show you how to do your job.

And the Toyota Way Philosophy supports everything: have respect for people and continuously improve. Those two rules alone can help guide companies through any major decision.

Again, we will discuss these principles in greater detail in future episodes, so stay tuned.

4. Now let’s talk about Six Sigma. The Six Sigma project model is divided into five phases; Define, Measure, Analyze, Improve, and Control. We often use the acronym DMAIC and say Duh-May-Ik. As mentioned before, there is a tollgate meeting after each phase to determine if the team is allowed to move on to the next phase.

The Define phase is when the problem is identified and scoped, and consensus is built for the project. As in traditional project management, a project charter is written. A Six Sigma project charter is a formal document that authorizes a process improvement project; defining its scope, objectives, team structure, and success criteria, serving as a contract between the project team and organizational leadership. It is reviewed and signed by senior management who require that the use of company resources be financially justified. Unlike Lean actions that can be performed for many different reasons, Six Sigma projects must improve the company's net profit – they must justify the use of resources. Otherwise, the project will not be approved. Once the charter is approved, the team holds a Kick-Off meeting where all the stakeholders discuss the plan for the project.

During the Measure phase, the team collects data on the process to understand the problem in a quantitative way. Here are some questions the team may answer: What is the basis of the customers' complaints? How many defects are we creating? Where does the defect occur on the product? Which process steps are experiencing the issues? Is there a pattern that emerges when we examine the defects closely? How does our current situation and performance differ from our expectations? Has our supplier changed the composition of their parts or material? Answering these questions brings us closer to understanding the problem.

The Analyze phase sees the team use statistical analysis to identify the root cause of the problem and quantify its impact. Now that we have collected all the measurements concerning our current state during the Measure phase, we can perform root cause analysis and test our assumptions. This is when we switch from Descriptive statistics which tell us about the quantity of our problem to Analytical statistics which help us identify the cause of our problem. For example, merely understanding that I am exactly 10 kilos

Commented [TS27]: Stakeholder: a person such as an employee, customer, or citizen who is involved with an organization, society, etc. and therefore has responsibilities towards it and an interest in its success

Commented [TS28]: Quantitative: relating to numbers or amounts

overweight does not help me solve my problem. I must understand why I am overweight so I will be able to change my behavior in a meaningful way.

The Improve phase identifies improvement strategies and puts them in place. As soon as the root cause has been identified, it is in the Improve phase that we generate solutions, test our theories and run experiments to optimize our performance. Designing experiments correctly is critical to better performance because we are trying to find the best results without spending too much time and money. If the experiments are not designed properly, at best, the team will not reach their desired results in time. At worst, the team will waste time and money creating a solution that does not solve the problem or optimize performance and quality.

The Control phase ensures that the improvements that have been made continue. After all the team's effort, the last thing that should happen is a return to the past. It sounds simple but creating a change and keeping the change are two different things. Change management requires that the team understand the mentality of the workers and managers who will be responsible for implementing the team's solution. They need to provide the training, materials and tools to help make the transition from current state to future state simple. Monitoring the performance of the future state is also critical as we must address any inconsistencies as soon as they occur to keep bad habits from returning.

5. Now that we have discussed the DMAIC lifecycle, let's talk about the roles and responsibilities of the Six Sigma project team members.

The main stakeholders are members of the organization that have an interest in the outcome of the project. The Project Sponsor is an executive level manager who helps the company align process improvement projects with the company's goals. If the company recognizes that it must improve in a

certain area, the Sponsor directs the Project Management Office (PMO) to create projects to fix the problem. The Sponsor delegates the Project Champion to manage the operation of the projects. This is a middle level manager who is responsible for the resources that the project team will use and is the main beneficiary of the improvement. They will take part in progress and tollgate meetings to determine if the team has completed all the necessary work before moving to the next phase. They are supported by two experts, the Process Owner who is the manager directly responsible for the process that is being investigated, and a Six Sigma Belt who is the Six Sigma expert. The Process Owner understands the process intimately and can answer all the questions the team has. The Belt, a Master Black Belt, Black Belt or Green Belt depending on the size and scope of the project, guides the team through the project and ensures they are using the right tools at the right time. They are also responsible for training employees and working with the PMO to ensure best practices are maintained. Subject Matter Experts (SMEs) are normally workers who have been with the company for a long time and have deep insight into the process. They are joined by other team members who work in the process and help the team gather data, perform tests and brainstorm ideas. The data analyst supports the Belt in performing statistical analysis. They are normally technical experts as well, able to find historical data relevant to the project and set up business intelligence software to make future analysis easier.

6. We have already discussed a little about how Agile changed how software is developed. This graph shows the different structures of the two methods. Much like Six Sigma, Waterfall is a toll-gated project management method that requires all the work from one phase to be completed before work in the next phase begins. It emphasizes planning and requirements gathering before the work begins and offers minimal contact with the customer as the

Commented [TS29]: Brainstorm: to suggest a lot of ideas for a future activity very quickly, before considering some of them more carefully

project progresses. Any changes in requirements need to be approved through committees and contracts may need to be rewritten. For these reasons, customers are hesitant to get too involved in the project.

In Agile, the requirements gathering and contract negotiation are kept to a minimum. In fact, during the entire project, documentation is kept to a minimum to dedicate all the resources to writing high quality code. This is possible because the customer is seen as a resource, a partner in the development process. This also means that managers must trust the development team to create the software without constant supervision.

As soon as the initial requirements are gathered, they are listed on the Product Backlog and prioritized by the Product Owner, the customer's representative in the company. Product Owners prioritize the requirements and ensure that the team understands what needs to be created. To make this clearer, the requirements are written in the form of User Stories that help the team imagine the functionality that the requirement provides the end user. The end user is the person who will use the software in their daily work. After the user stories are prioritized during the Sprint Planning Meeting, the team sets a time limit to complete a certain number of tasks and agrees to complete the work in the given time. This is called a Sprint. During the Sprint, normally 2-4 weeks, the team focuses on writing high quality code, and the Scrum Master does everything in their power to support the team and provide the resources and training to help the team achieve their goal. During the Sprint, the team holds daily stand-up meetings that only last 15 minutes. This limits the time the team spends in non-productive activities and allows the Scrum Master to learn how they can serve the team. The Scrum Master then updates the team's status boards, informing leadership on the team's progress. This reduces the number of interruptions from executive leadership.

After the Sprint is completed, the customer is invited to the Sprint Review meeting where the team shows them the progress they have made on the product. The customer then provides feedback and gives more clarity about their expectations. This serves two purposes. First, it further informs the product owner who uses the feedback to clarify and prioritize the user stories on the product backlog. Second, the meeting holds the team accountable for their work, as they must present workable software to the customer, even if it is incomplete.

After the Sprint Review, the team meets to evaluate their performance in the Sprint Retrospective. They speak about what went well, what did not go well, and how to improve during the next Sprint. Meanwhile, the Product Owner reprioritizes the Product Backlog and refines the User Stories to help the team choose the most critical items to develop during the next Sprint.

In this manner, the customer provides valuable feedback to the team before too much time is wasted developing something that does not meet their expectations. It also gives the customer the opportunity to accept delivery of the product once it meets their expectations. This helps the customer shorten the time to market and deliver a product before it becomes obsolete by another company's product.

7. As mentioned earlier, Agile is heavily influenced by Lean. Here are just some of the ways Lean appears in Agile.

Adaptive learning and continuous improvement. The Sprint Retrospective gives the team the opportunity to review their performance, learn from their past mistakes and improve in the next Sprint. The Scrum Master stays in touch with the team and provides any training that they need to overcome new obstacles.

Focus on delivering High Quality. There are many methods that Agile practitioners use to ensure that the quality of the product is high. For example, paired programming is the practice of having programmers work together – one junior level programmer entering the code and the senior level programmer reviewing it in real time. This ensures that problems are identified before they become part of the final product. The goal is to deliver what the customer expects with zero defects.

Activities are graded for their value; meetings are minimized. Agile projects are started with the minimum amount of planning and documentation because they know that value is not added with more paperwork. The customer is paying for workable software, not additional meetings.

One Piece Flow. The Sprints help the team focus only on a few tasks at a time. This reduces poor multi-tasking and inventory that is a waste until completed.

Roles and responsibilities are similar to lean management. The Scrum Master is a servant leader who gives the team the ability to make decisions about how the work should be completed, and executives are open to hearing how it can be improved. And leadership is kept up to date with visual management tools, which replace time-consuming progress meetings.

Quality is a part of the process and waste is removed. It is easier to design processes that produce high quality software than it is to use wasteful processes and fix the bugs and repair the code after it has been written.

8. Well, that brings the training portion of this episode to an end.

Congratulations, you made it all the way through. I'm proud of you. You didn't give up, no matter how boring it became. And to be honest, I was pretty bored too, and after reading and editing this for the past week, I am really tired of the sound of my own voice. But **be that as it may**, we have

Commented [TS30]: "Be that as it may" acknowledges a fact but suggests that it should not stop or divert the ongoing action or conversation.

more episodes coming and here is the plan. Our next episode will be a look at Lean Management exclusively, then Six Sigma and Agile. I know that this episode was quite long, and I had to cut it into two parts, so I may have to do the same with the next episodes. There is just too much material to cover. And hopefully I will hear from some of you about topics that interest you or problems that you may have, and I can address those in the coming weeks and months.

9. And finally, here is our contact information. You can find us at leanenglishconsulting.com and send us an email at info@leanenglishconsulting.com. I would love to hear from you. As I mentioned earlier, there is a PowerPoint presentation and transcript of this episode on our site and on The Lean English Podcast YouTube channel. So, check those out as well.

Now, I write and produce all my podcasts by myself, and unfortunately, this is my own voice. It is not AI. So hit the like button and subscribe if you feel so inclined. I greatly appreciate it. Well, that's it for today. Until next time, be good and I'll talk to you later.

Notable works

Beck, K. B. (2001). Manifesto for agile software development. <https://agilemanifesto.org/>, 1.

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