

# Lean Data Governance Machine

Eliminate wasteful and costly data management processes in your organization

## Why Lean Data Governance?

If data governance is high on your agenda for review, refocus or preliminary implementation, Lean Data Governance may be the right option for your business. This approach can help your business eliminate wasteful data governance activity and promote efficiencies.

This paper provides an outline of the Lean Data Governance approach and demonstrates the considerations at each step of the implementation. This paper provides guidance for:

- Individual business units responsible for data management
- Managers with responsibility for data and information management processes
- Businesses that are implementing or have already implemented traditional Lean at an enterprise level
- Businesses that have no immediate intention of Lean implementation at an enterprise level but need to review their data governance program

This is not a “scrap and start again” approach, and there is no need for the workforce to be formally trained on Lean. This approach is designed to help you adopt what you need and adapt as you see fit. Lean Data Governance is a way of thinking, not a checklist approach.

## Desire to Be Lean

A YouGov survey found that among 34 million people in Great Britain who intended to make a New Year’s resolution, 50% wanted to lose weight and 43% wanted to get fitter. Despite the fact that 42% of these people are likely to have broken this resolution within a month, the overwhelming desire to get lean never seems far from our minds.



### About the Author

Kiran has over 14 years of experience working with data in various sectors. She has a strong background in Data Strategy, Management, Marketing and Performance. Her focus is to ensure that data is used as an asset and is maximised for a variety of purposes. Kiran has expertise in creating large scale data management programmes across the Public and Private Sectors. She works to enable businesses to trust their data and to understand that data is the glue that holds them together.

This is true not only for the physical and mental health of a human; this is true also for any operation that needs to be efficient, effective and robust. In the business world, Toyota's desire to become disciplined, well organized and streamlined to improve overall customer value saw it grow from a small company to one of the ten largest companies in the world. It is currently as profitable as all other car companies combined, and Toyota has been the largest car manufacturer since 2007. Between 1948 and 1975 Toyota developed Lean Manufacturing, which has now been adapted for service organizations. Lean methodologies have been developed and adopted in the largest and most successful organizations across the globe.

### **Some Definitions**

Lean is: "A systematic approach to identifying and eliminating waste through continuous improvement, flowing the product at the pull of the customer in pursuit of perfection."  
(The MEP Lean Network)

Data governance is: "The specification of decision rights and an accountability framework to encourage desirable behavior in the valuation, creation, storage, use, archiving and deletion of information. It includes the processes, roles, standards and metrics that ensure the effective and efficient use of information in enabling an organization to achieve its goals." (Gartner)

### **Classic Lean Approach**

All organizations run internal processes that facilitate the provision of services or goods. The Lean approach has been developed to identify and eliminate waste in business process to improve efficiency and promote effectiveness. The eradication of waste (non-value-added activities) is the focal point of this methodology, which if implemented successfully leads to enhanced outputs as a direct result of more calculated, Lean inputs. Improved quality control, bigger profits, effective cost management and increased competitiveness are particular areas within which the business can appreciate positive results.

The key principles of Lean thinking concentrate on an iterative approach that considers what the customer perceives to be good value. Much thinking goes into how this value will be delivered, how this process will be continuous, being able to respond to customer demand and achieving perfection. (Five Principles of Lean Thinking, Womack and Jones, 1996)

### How Does Lean Work?

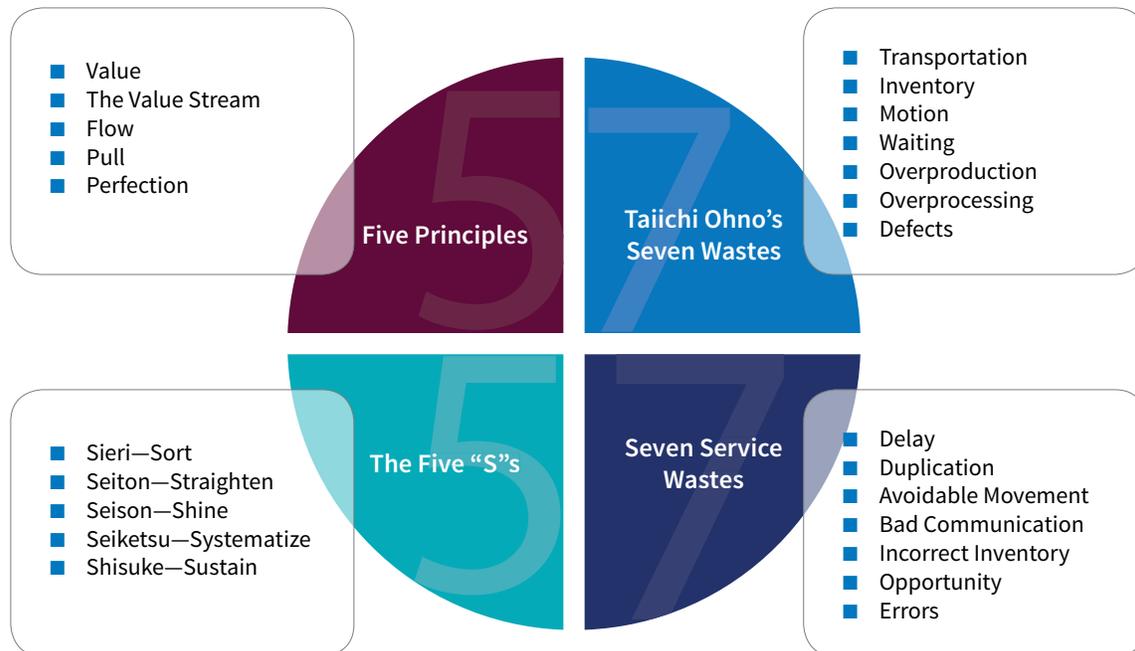


Fig 1. Lean Principles  
Source—John Bicheno, Lean Toolbox (2003)

Lean methodology is commonly applied in parts of a business where the business process is visible and known to the organization, for example, in manufacturing. Lean teachings such as Taiichi Ohno's Seven Wastes, the Five Principles and the Seven Services Wastes often refer to operational adjustments within the organization to facilitate value-driven outputs. Efforts in waste elimination in areas such as Transportation, Motion and Overprocessing are primarily focused on the process flow in an operational context. There is, however, an undeniable synergy between the data governance and Lean approaches. Lean is often applied to operational processes, but great success has been achieved by applying Lean to data governance.

To explore this approach further, let's first understand the basics, starting with data governance.

## Trillium’s Six Data Governance Disciplines

Simply put, data governance is a framework for effective management of data and processes. It allows the business to maintain control over its data and processes by building a vigorous program. This program addresses the needs of the business user; empowers key stakeholders to manage their data effectively; implements robust, automated processes; reduces costs; and promotes efficiencies.

An effective governance program provides the key stakeholders with the appropriate forums within which to define, refine and manage data processes, with the added ability to discuss and resolve issues. Trillium has successfully used its six Data Governance Disciplines when approaching the review, implementation or refinement of a data governance program.



Fig 2. Trillium’s Six Data Governance Disciplines

## What Is Lean Data Governance?

There is a perfect synergy between Lean and data governance, with core principles focusing on driving efficiencies, minimizing waste, and delivering robust, reliable and timely outputs. When applying Lean principles to data governance, the balance shifts slightly, with the focus moving to the internal customer as opposed to the external customer.

Data governance is the joint responsibility of the business and technology functions of an organization. This joint approach is critical to the success of a governance initiative and needs to be executed across the enterprise. The governance of data is vital in order to create a system in which there is positive control over the management and handling of data. However, this needs to be supported and realized by a strong network of people with defined roles, sponsorship at the executive level, controls, processes and policies to manage the data and information. The correct mechanisms need to be in place for the governance cycle to exist and continue to be successful.

When data management processes are not Lean, we can see live examples where data goes through many needless processes within the systems and tools and is governed and managed ineffectively. The data may travel back and forth and become overprocessed to the point where crucial, valuable information may be lost. In some cases, accessibility is compromised because a user has to go through a long process to obtain access to data. This may result in workarounds or the user continuing the working process without the aid of important data to drive the decision-making process. Applying Lean thinking to data governance helps us avoid this type of scenario.

Lean Data Governance is the optimization of classic data governance. Best-in-class data governance is usually hard to come by, but when you do see it, the principles of Lean are clear. It is important to apply Lean principles to make this a successful program. The concept of minimizing waste and optimizing process is what helps propel the business closer to excellence.

## Lean Data Governance—the Bigger Picture

Before we get into the details of the Lean Data Governance approach, it is important to understand how Lean fits into the organization and what the key dependencies are. The Three-Phase Lean diagram illustrates how Lean culture is a core requirement in order for the business to succeed with its Lean program. Creating this solid foundation ensures success, whether the business is applying Lean in all parts of the business or only on a data governance level.

A Lean culture is best introduced with a focus on people, using workshops to explain Lean principles and to help staff understand what part they will play in the execution of Lean. This people-centric approach will help them begin a journey that will facilitate smoother, more valuable operations within the business. Adopting this culture and obtaining buy-in from the people who will feed into the success is crucial. This is a way of thinking that provides a framework for the approach to Lean in data-rich, people-centric organizations.

Whether or not a business has a Lean agenda, it is important to remember that Lean Data Governance is an approach that can be used independent of an enterprise-wide Lean implementation.

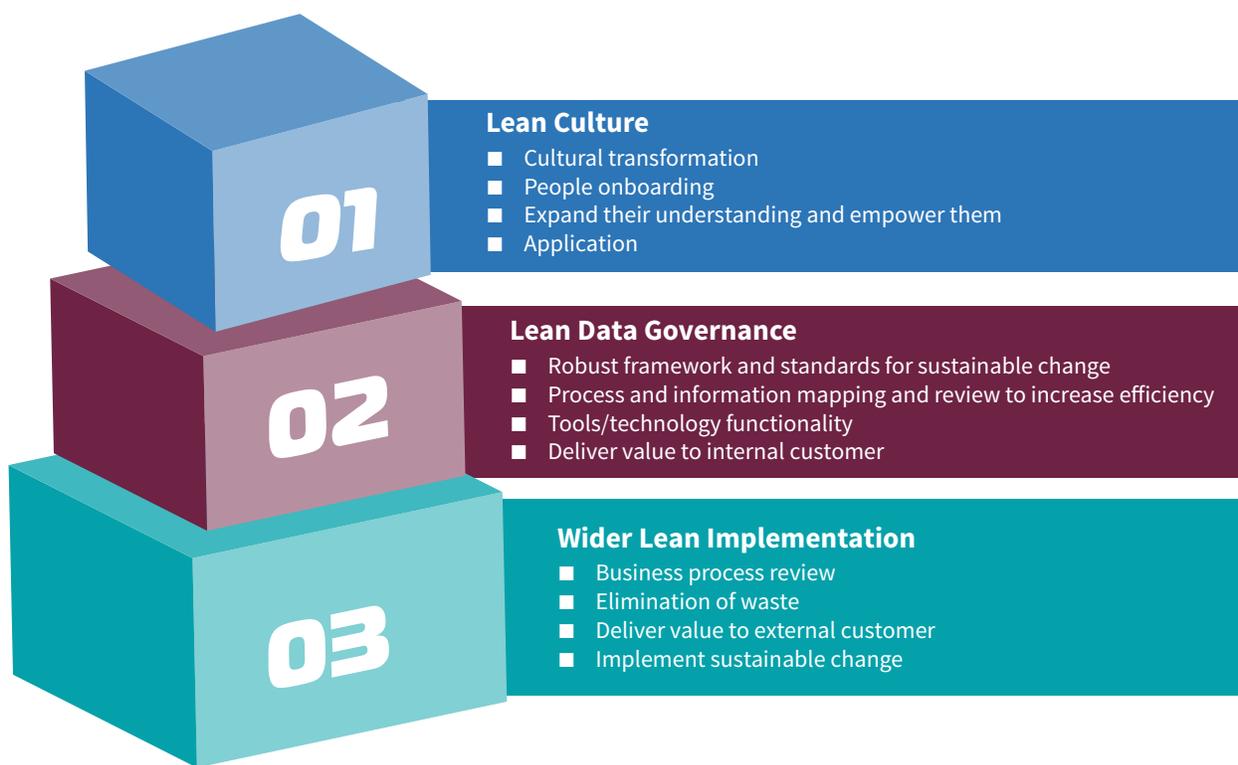


Fig 3. Three-Phase Lean, Trillium Software

## **The “Hidden Factory”**

The hidden factory syndrome is often discussed when exploring reasons why Lean is an effective methodology to use in business. There are also hidden factories in the management of data in the business, giving us more reason to apply Lean Data Governance. The term “hidden factory” is used to describe areas in the business that are visible but have unseen processes running in the background. These activities are not transparent, often are very wasteful and run a high risk of duplication of effort.

This commonly occurs in the production of reports. Where reporting is not centrally controlled, similar reports are generated in various parts of the business. Data is extracted and processed using different rules, with varying results for the same metrics. This introduces duplication of effort with a high risk of bad information being distributed, and ultimately these activities may cost the company financially. Lean Data Governance involves identifying and exposing these hidden factories, allowing the business to replace them with more transparent and efficient operations.

## **Lean Data Governance Approach**

Key strategic decisions must be based on sound data. Data feeds into reports that facilitate decision making at ground level and senior levels. Data is used to determine resources, timing, product stock, response times—in fact, every metric that is crucial to monitor and ultimately enhance performance.

## **Waste Prevention**

Using the Five Principles of Lean, it is essential to prevent the occurrence of waste. These six principles allow the business to assess where waste may be occurring and to implement steps to ensure that the waste does not occur in the future. The key is to understand what the business is trying to achieve and to identify the best way in which to achieve this.

## **Waste Elimination**

Taiichi Ohno’s Seven Wastes provide a comprehensive list of areas for waste elimination. Elimination of waste is crucial for improving quality and efficiency within the organization. This is an essential step where waste that is causing immediate risk, financial loss or significant decrease in quality can be identified and eliminated.

The Lean Data Governance framework applies the same principles to the prevention and elimination of waste in the world of data governance. Lean Data Governance can be achieved in an organization that is willing to make the required changes and assign the relevant resources. Using waste prevention and elimination techniques, we can begin to see how Lean and data governance principles are intrinsically linked.

## **Waste Prevention**

Though the elimination of waste will help achieve Lean Data Governance, the Five Principles of Lean help us prevent the occurrence of waste. The following five principles, when adopted as part of the Lean Data Governance approach, lay a foundation for streamlined governance processes and facilitate the prevention of unnecessary activity.

## **Specify Value as Seen by the Customer**

Delivering value at the right time to the internal customer is a crucial requirement for Lean Data Governance. Define value accurately by speaking to your customers.

The customer in Lean Data Governance is an internal customer: the internal customer is Joe from Marketing, Sheila from Finance and Pam at the senior executive level, who need to make key decisions. The internal customer is the internal business user who is depending on the data and the reliable and robust processes to deliver data that will assist him or her in performing daily functions. Putting these internal customers first and defining value through their eyes allows the business to address their needs by identifying what tools and services they require to assist and improve their performance. Value for a business user in Marketing may be timely, mailable data. If this data is late or not standardized, it is of little value to the customer. The business needs to identify and understand what value means for each internal customer.

## **Identify and Create Value Streams**

Value streams need to be investigated and refined in order to free the organization of wasteful activity. Create new ones if the old ones are not good enough.

A value stream is the flow of materials and information required to bring a product or service to a consumer. When the value has been defined, the value stream that creates the value must be identified and enhanced. The value stream is mapped and optimized at every stage of the flow. The identification of these stages within the data governance effort is essential. It is important to map physical and electronic information flows and the processes required to achieve the end goal (value). It is also crucial to identify the associated risk to enable mapping and understanding of the existing streams. The aim is to eliminate whenever possible those steps that do not create value.

For example, an internal customer within the Performance team needs data to feed into a report. The accepted process is to send an email to the Technology team requesting data. Technology runs a SQL query to manually extract that data. Values and formats are adjusted to suit the purpose, and the data is then emailed back to the customer. The customer uses the data to feed his or her own reports, which are emailed for further distribution. Immediately we can see there is minimal value in the stream. To turn this into a value stream, standardized reporting formats, regular reporting schedules, automation and central accessibility to that report would all create a value stream that is Lean and doesn't waste time and resources. This would also eliminate errors and increase accuracy and reliability—all key components of effective Lean Data Governance.

### **Make the Value Flow from Source to Customer**

Flow enables the value to be delivered with minimal stages and activities. A seamless flow is a key requirement for Lean Data Governance. Look at all flows in the data governance program and map these to ensure that there are no breaks.

For high-impact results, creating flow in the value stream is essential—avoid batches and queues. Data governance will have many value streams, each of which needs to flow seamlessly. It is essential that there are no breaks in the flow of activities and processes that create value for the internal customer.

This can be demonstrated in data governance as areas that require speed and agility in the process from beginning to end. Issues management is an area of governance that requires precise focus. Managing data issues from point of identification to resolution requires a smooth and efficient procedure governed by a stringent set of rules. Internal customers must be able to log an issue and receive receipt of the log and a quick response to their problem with minimal impact on their work. This creation of flow continues out of sight of the customer when the issue is prioritized, investigated and resolved. There must be protocol in place to ensure that service level agreements are adhered to and the customer receives the response in the specified time. Flow in this scenario helps deal with the issue quickly and effectively and keeps the customer happy.

### **Create Pull**

The internal customer must demand before you create the supply. Look at all areas of data production, including reports and data extracts. This will help eliminate wastage of time and resources, including people and storage facilities.

A process should operate only when there is a demand from the internal customer. This stage highlights the need to respond only when there is a requirement. For governance to be effective, the business cannot afford to forecast and guess what the demand will be. Instead, the business needs to stop unnecessary processes and activities and avoid leaving resources idle in anticipation of a request filtering through.

With marketing data, for example, suppression flags should be applied before any marketing activity takes place. This may involve applying Mailing Preference Service (MPS) and Telephone Preference Service (TPS) flags. Some organizations treat this as one process. The Marketing team may be mailing materials on a weekly basis, which justifies the need for this to be an automated process, creating a seamless flow. Some organizations purchase TPS flags when they have no intention of conducting any telephone marketing. This demonstrates a need to keep the TPS process independent of the MPS process, with the customer pull being the trigger for this activity. This “just in time” approach ensures that the data is current and relevant, saving money and processing time.

### **Strive for Perfection with Continuous Improvement**

Perfection is achieved only when feedback is received and tweaks are made. Allowing open-door policies where feedback is welcomed and well received will help you accomplish this. Act on the feedback by feeding it into your Lean Data Governance program.

Continuous improvement, or “Kaizen” in Japanese, means creating a culture of continuous improvement that promotes attitudes that strive for perfection. The business should collectively work to improve data governance in the search for perfection with the necessary mechanisms in place to enable this. Once the customer-defined value is flowing at the pull of the customer, the continuous approach helps the business make improvements and feed them back into this cycle.

For data governance to be iterative and work as a consistent feedback loop, data stewards, data champions, steering groups, committees, and feedback mailboxes or forms are some of the key instruments needed. These allow the business to monitor how Lean Data Governance is performing and how it can be improved. Participation is required by all in the organization who help deliver customer value and achieve sustainable change within the internal governance processes.

Following the principles for waste prevention embeds the necessary fixes and plugs the existing gaps. The principles outlined above will help the business understand each process flow, what “value” means to the internal customer and how this should be achieved. Understanding each key process in detail will help identify waste and put into place some controls to help prevent this in the future. Completion of this step supports waste elimination.

### Waste Elimination

When looking to eliminate waste, each one of Trillium’s Data Governance Disciplines (Fig 2.) should be explored for practices that may be generating wasteful outputs. Vision and strategy, organization and people, data management and metrics, tools and technology, process, and communications should be subjected to a TIMWOOD assessment. This mnemonic represents an in-depth assessment that enables the business to implement a Lean Data Governance approach.

Assessing these areas helps pinpoint waste. When embarking on a data governance program, it may be difficult to decide where to begin, what processes to look at and where to focus one’s effort. TIMWOOD helps put some definition and methodology around this assessment and provides some structure when tackling complex processes.

		Symptoms	Cure
T	Transportation	Excessive data movement from systems/repositories	Mapped process and refined data journey
I	Inventory	Critical reports and data produced and stored	Identified requirements and adjusted frequency
M	Motion	Physical movement of paper-based records	Minimized production
W	Waiting	Waiting for data from unreliable sources	Developed SLAs and other agreements
O	Overprocessing	Business rules applied that no one understands	Reviewed, updated and standardized
O	Overproduction	Too much data being produced at source	Define requirements with providers
D	Defects	Defects in data—dealt with using workarounds	Addressed data quality issues at source

Fig 4. TIMWOOD

## Transportation

The waste in transportation includes activity such as the movement of data and information from different systems and repositories to its end destination. Though this movement is essential, the business should look at ways in which to minimize it.

In a more complex organization, processes and functions become blurred. Data is captured at various points and then transferred into smaller departmental storage systems. The levels of processing and movement vary by storage system or division. The data may be extracted directly from the source for local analysis or reporting. In addition, the data is eventually fed into a central repository (providing the business has moved to create a single view with appropriate ETL processes in place) and may be subject to central processing. Furthermore, this data may be moved again to feed other downstream reporting tools.

To ensure that data governance is Lean, the transportation of data must be mapped and reviewed. The tools and technology must be assessed to ensure that they are fit for their purposes. In the absence of a central data repository, particular attention should be focused on areas of the business where copies of the database exist. Other areas of Trillium's Six Data Governance Disciplines should be assessed closely to see where excess movement of people or information can be minimized to reduce cost and save time.

## Inventory

If waste prevention steps are followed, overproduction and inventory waste become things of the past. Responding to the pull of the customer ensures that the business is no longer holding surplus data, overproducing reports that are then archived, or maintaining product codes that are no longer used.

In most cases, inventory is created by overproduction and often leads to using out-of-date data or using excessive storage space on the servers to facilitate the provision of a service that may be requested at some point. Many internal processes need to be closely evaluated to ensure that each flow does not create excess materials. Inventory can also refer to people. In organizations with a lower level of governance maturity, workarounds that have become embedded in the day-to-day processes can lead to creation of unnecessary positions in the day-to-day processes. Inventory can be interpreted to suit the situation, and excesses need to be recognized, reviewed and reduced where necessary.

## Motion

Transportation refers to movement of data or other products between processes. Motion, however, refers to the movement within a process. When managing data, the journey it takes to get to the central repository is reviewed under transportation, but the processes it feeds and participates in thereafter need to be viewed with the objective of identifying excess or unnecessary motion.

Using tools and technology to move, manipulate and interrogate data during processing for quality assessments or analytical purposes is a key area. Time spent waiting for a report to run or for flat files to load for processing is time wasted in data motion.

Using industry-leading tools for the objective in hand is essential. For data quality and accuracy, market leaders offer stand-alone tools or complete data quality platforms purpose-built for business and IT collaboration. This technology enables faster processing, intuitive data management and elimination of wasted motion. These considerations help the business save money and time that ultimately add up to significant savings.

### **Waiting**

This is potentially where most waste occurs. By evaluating each of Trillium's Data Governance Disciplines, a business will be able to identify some form of waiting that can be avoided. A data governance strategy, policies, procedures and related documentation are all designed to assist and facilitate the successful implementation and continuation of data governance. However, when business objectives change or policies need to be altered, how long does this take to be reflected in the documentation?

It can take significant time to draft, review, sign off and publish documentation. The process is long, and by the time things are updated and republished or made available to the internal customer, internal changes have been managed using a workaround that may well become embedded in the process. This results in absence of data governance and governance of associated processes if this documentation is not made available. Such crucial processes need focus and refinement. Waiting for essential outputs, be they data, reports, alterations or something very specific to the governance process, results in a negative impact across the organization as well as wasted time that could be used to do something more productive.

### **Overprocessing**

This correlates with the identification and creation of value streams in the Five Principles of Lean. Overprocessing refers to processes that do not add value. Overprocessing tends to occur in data management. Data goes through many processes, some of which are necessary and some of which are performed out of habit. These have been written into the policies with people supporting the processing but not really knowing why this is done.

Those responsible for a particular process (e.g., shipping, invoicing) need to review business rules associated with the process. Some businesses have many rules built up over many years. These business rules may dictate the people who can be contacted for marketing, rules for distribution of products to certain parts of the world or criteria that dictate availability of services to a customer. These rules impact the way the business operates, but every so often someone asks the key question—why are we actually doing this?

It is this overprocessing that needs to be explored, with deep dives into each process to take out unnecessary non-value-adding processes. The whole purpose of data governance is to focus on areas such as increased consistency and accuracy and minimized overlap or duplicated effort. This part of Lean Data Governance and waste elimination feeds into fundamental areas that will help the business achieve its Lean goals.

### **Overproduction**

This is the production of more than what the internal customer demands. The internal customer needs specific products, services and outputs that enable effective functioning. To ensure that data governance is Lean, scrutiny should be applied to all areas that are prone to overproduction, including people, processes, technology and data management. Whether it's an excess of data, reports, analysis or meetings, emails or documentation, overproduction leads to wasted time and effort.

Information systems such as dashboards are used in many advanced organizations to monitor the performance of data at frequent intervals. This enables the organization to identify key metrics and provides an attractive and simple visual representation of performance with the capability to generate and distribute relevant reports across the business. This is a perfect example of how the introduction of a system such as dashboards can help avoid overproduction.

### **Defects**

Defects in data can occur regularly and repeatedly. They may go unresolved at the source as the business deals with it at a later stage, using well-established workarounds. The impact of this can be described in several waste categories. Defective data and defective processes can impact the business in numerous ways—defective data or information at the source is spread to the entire organization and fed into reports, so consequently users make decisions based on bad information. External and internal compliance and risk management are impacted as inaccurate information may lead to risks being missed or incorrect risks being captured. The ability to mitigate and control risk is reduced, putting the organization in a high-risk situation. Key data and internal monitoring systems need to be free of defects to ensure that risk is identified, logged and mitigated.

Data inaccuracy at point-of-capture is also a major cause for defects. The capture of erroneous data or inputting of data into incorrect fields can cause many issues down the data consumption line. Data capture reviews, policies and training need to be implemented and enforced to ensure that such defects are eliminated. Defects cost the business money. For example, if data is defective and the quality is poor, the Marketing team may be unable to respond to a hot opportunity in time. They may have to wait for the data to be fixed, enhanced or standardized before they can send out a campaign to target the leads, which may not be so hot anymore.

Significant attention needs to be paid to the processes within the business where defects are likely to occur. Identifying these areas of risk will enable the business to monitor, eliminate and prevent these defects.

TIMWOOD provides a suitable structure for the assessment of current data governance processes. It provides flexibility in terms of what waste means to that particular business, and it helps identify and eliminate waste in the key areas of the business.

### Turning an Approach into Reality

Lean Data Governance is not just an approach—it is a way of thinking.

The synergy between Taiichi Ohno’s seven wastes, the Five Principles of Lean and Trillium’s Six Data Governance Disciplines creates the perfect formula for Lean Data Governance. Delivering an actionable, impactful and lasting Lean Data Governance program requires that strategy, people and organization, processes, technology, and data management be explored in detail. TIMWOOD and the Five Principles of Lean need to be applied to each discipline individually to create a log of the current state, immediate risks and desired state. Based on this, a Lean Data Governance program is developed with a list of actions and a robust methodology to deliver it.

Regardless of the governance maturity levels in the business, each phase of implementation needs to be aligned to the organization’s needs. Each step needs to be looked at with a focus on Lean methodology.

The following diagram illustrates an example of an implementation process. This can be applied to new initiatives and provides a good outline that encapsulates Trillium’s Six Data Governance Disciplines. It also provides a good indication of the stages where waste prevention and waste elimination activity should take place.



Fig 5. Sample Implementation Process

## Summary

- Lean Data Governance is an approach that needs to be adopted and adapted to suit the business. It is a mindset that needs to be embraced by the organization in order to function without having to refer to manuals and textbooks.
- Lean Data Governance ensures that your organization is focusing on governance by eliminating wasteful activities. The elimination and prevention of waste will allow the business to optimize data governance and the associated processes.
- Lean Data Governance will deliver value to the internal customers, and consequently the external customer base will receive a service that is fueled by a well-oiled and perfectly tuned Lean Data Governance Machine.
- The heart of the organization is data—data is an effective asset only when governed and managed appropriately.

Your business functions like a human body. At the heart of it is the Lean Data Governance Machine—this is the organ that pumps reliable data to the vital areas of the business. If the data is contaminated with errors or produced using unnecessary processes, the business is at risk of collapse or malfunction. If your business carries waste or undertakes wasteful activities, it is likely to burn out. The only way to survive is to get Lean.

## About Trillium Software

Trillium Software, A Harte Hanks Company, enables organizations to achieve Total Data Quality by providing a full complement of technologies and services for global data profiling; data cleansing and enhancing; and data linking for e-business, customer relationship management, data governance, enterprise resource planning, supply chain management, data warehousing and other enterprise applications.

## To Create a Lean Data Governance Machine

- Avoid batches and queues
- Enable speed and agility
- Eliminate and prevent waste in all areas of data governance
- Automate, standardize and improve processes
- Ensure meticulous management and governance of process flows
- Apply continuous changes and updates to the program
- Deliver value to internal customers when they demand it

In any organization, data governance is constantly evolving. To adopt Lean principles in data governance is to innovate. To innovate is to develop new thinking and to be a leader. To be a leader is to organize a group of people to achieve a common goal. Lean Data Governance is the epitome of leadership and innovation. When implemented within your business, it is a perfect formula for success.

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