



APPLIED ASSET MANAGEMENT

Blog Posts

Opportunities in Asset Infrastructure

Embrace LEAN Thinking within a Municipal Environment

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Has this COVID-19 crisis made your work environment extremely challenging? The answer may be ‘yes’ if you are trying to navigate infrastructure services with many of your personnel working from home. From another angle, your municipal organization may have exhausted considerable funds with its COVID response, and likely tightening budgetary expenditures. So, what does all this mean? How do municipalities truly navigate the ongoing COVID crisis so they can emerge somewhat financially resilient? The answer is LEAN Thinking applied to infrastructure Asset Management practices.

What is LEAN Thinking?

LEAN Thinking is a practice of removing *muda* or waste, which has no real value, within an activity. *Muda* is the Japanese word for “waste”. Waste costs time, and time is money. Value is what the customer experiences from an organization’s coordinated activity performed by its workforce. The word *activity* has a direct correlation to Asset Management. LEAN Thinking arranges actions steps within an activity in the best sequence, conducts the activity without interruptions, and continuously improves upon the activity to perform it in the most efficient and effective manner.¹ This enables an organization to do more with less.

Commonly used LEAN tools include Value Stream Mapping, A3 Modeling and 5S Methodology. To simply paraphrase, Value Stream Mapping is used for deep examination of an activity’s current state and transformation to its future state. A3 is the standard international size of an 11”x17” sheet of paper and is a great tool for root cause problem solving and business case decision-making. The 5S Methodology involves space organization and is especially useful in municipal field operations and maintenance to operate central storage rooms more efficiently, liquidate unused or obsolete infrastructure spare parts or reducing facility size. More examples, tools, and multiple applications are available through the LEAN Enterprise Institute.

LEAN Thinking within the practice of Asset Management

Asset Management is the coordinated *activity* of an organization to realize value from assets.² An organization can have the best of Asset Management policy, strategy and plan developed by senior leadership or management, but the truth is that Asset Management is highly dependent on its coordinated *activity* performed by its people. LEAN Thinking enables actions of organizational *activity* to be arranged in the most effective sequence from start to finish and performed most efficiently without waste or interruption. It also enables the very people who perform the *activity* to be problem solvers for removing *muda* and creating value. In times like today, your budgets are becoming more constrained than ever before. The COVID and economic crisis has precipitated furloughs, lay-offs, or early retirements within the workforce placing a considerable strain on even the best succession plans. For asset infrastructure, this may mean doing less preventive field operations and maintenance, just doing enough to remain regulatory compliant, or simply doing more with less. It may also mean trimming back on the number of

capital projects. Whatever the case, asset infrastructure cannot afford to have more reductions. Asset infrastructure is already pushed to its limitations in condition, age, and present demands. Your response to this new world of COVID is LEAN Thinking. LEAN Thinking is the methodology that will help navigate your business operation and organizational *activity* toward the direction of sustainability and financial resiliency that realizes value from its asset infrastructure.

LEAN Thinking for the Municipality

You may have heard about LEAN in manufacturing; and it is true that LEAN Thinking was born within it. Many believe that LEAN Thinking is only applicable to a manufactured product, trimming a workforce, or reducing a plant footprint. Therefore, LEAN must not be applicable to the municipal environment. False! LEAN Thinking and its array of tools is very applicable to a municipality. But how? Let us first consider these 'pains' experienced by an Infrastructure Asset Manager:

- Inconveniences to businesses and residents due to a lengthy watermain break repair or incomplete site restoration?
- Performance analytics associated with field activities on infrastructure assets are inapplicable or have yet to be established.
- Energy costs on public facilities are constantly a challenge and renewable energy sources are being pushed without fully understanding their Return-on-Investment.
- Capital project delivery for constructing new or replace aged infrastructure frequently exceeds scope, schedule, and budget.
- Outcomes from operations and maintenance activities are rarely linked to the annual budget process; and therefore, a dichotomy exists within the accounting books.
- Central stock room contains considerable expense in non-liquified assets like too many spare or obsolete parts, and excessive 'real estate' space to maintain.

... and the list goes on. So, what do these all have in common? Activity, people, and value! Activities can either be field operations, like snowplowing, pavement patching, watermain break repairs, sewer maintenance cleaning, biosolids management; or administrative, like the capital investment planning, decision-making, and project delivery processes.

All activity must have key indicators to demonstrate their performance, either by regulatory compliance or defined by field or administrative personnel that have 'ownership' in the activity. Secondly, activities are performed by people, which are your most important asset! Use LEAN Thinking to help your people succeed and get the most from the activities they perform. Lastly, when the activity performed by people are coordinated efficiently, and effectively work toward achieving infrastructure and organizational strategic objectives, then they are producing real value for the public.

LEAN Thinking can reduce municipal costs and free up resources to perform other necessary duties that could rarely be done because there was not enough workforce previously available. I have found that using LEAN Thinking tools to analyze primary activities can eliminate waste and assign an appropriate number of personnel to perform the work. Available personnel may be re-assigned to other activities like policy and ordinance enforcement, inspections, public relations, quality controls, or customer service.

What is "Value" to a Municipality?

The manufacturing industry clearly indicates how its customers define "value" from purchasing a "product". How did they do this? They asked their customers. This is no different to a municipal organization; ask your customers, the stakeholders! I will agree that stakeholders are greater in numbers with a municipality, but why not ask them. Planners do this well through public forums when developing

master plans. For physical assets, how do customers see value from the infrastructure for which they pay taxes, rates, or fees? What does the public expect from customer service on the activities a municipality performs? Ask the customer. What does value mean to the public? Ask the customer. Much value can be found by interpreting the strategic plans that include long-term community goals. Let us consider “affordability”. Affordability has tremendous “value” when LEAN Thinking is applied to continuously improve asset operations and reduce the total life cycle cost of infrastructure ownership. This translates into lower rates, fees, or taxes that directly affect the public. “Value” is all throughout planning documents, vision, mission, and objectives statements. It is also within long-term strategic objectives for asset infrastructure. The key is to collect, categorize, interpret, and verify against stakeholders that we understand what “value” means to them.

Your Workforce as Problem Solvers

People do organizational *activity* and people do Asset Management. Therefore, people are better positioned to solve problems within the activity they perform when managing asset infrastructure. As leaders, we encourage inclusive and diverse participation into problem solving from stakeholders that contribute to or have an ‘ownership’ in the activities that manage asset infrastructure. We must also be catalysts for facilitating creative ideas and opportunities. Leaders must sponsor change that helps foster problem solving and reward those for doing such.

LEAN value stream mapping is a powerful tool that enables people to solve problems through stakeholder participation on the current state of an existing activity. It is best administered with a facilitator who is experienced with municipal topics yet is independent of the organization or department. A facilitator can assist in mapping the ‘current state’ versus the ‘future state’ of any activity, thus exposing an activity to opportunities like:

- Identifying the resourcing gap between the current and future state.
- ‘Right-sizing’ the number of personnel performing an activity.
- Creating ideas or new business opportunities.
- Seeking renewable energy or energy efficient opportunities.
- Reducing operations and maintenance expenditures.
- Identifying, evaluating, and treating risks.
- Developing performance indicators that support business analytics.
- Documenting workflows and improved decision-making protocols.
- Identifying resources necessary to help the activity-owners succeed at the future state activity.
- Documenting new standard operating procedures and change management protocols to ease workforce transformation into a future state of business operations.

Leaders need to be ‘Chief Executing Officers’

At times, leaders tend to view themselves as ones who must derive problem-specific solutions for staff to implement. This implies that leaders are the problem solvers because of their position as a Chief Executive Officer, Top Manager, Department Head, Public Works/Services Director or Chief Administrator. On the contrary, these leaders must be Chief “Executing” Officers in doing what it takes to make the workforce succeed in being the true problem solvers. This is done by training and equipping your workforce in LEAN Thinking and illustrating in simple terms your organization’s framework for strategic performance and asset management. Use LEAN Thinking to translate tactical activity into customer value and strategic outcomes through asset infrastructure. Finally, unleash the most important asset in your toolkit by empowering your workforce in becoming problem solvers on the daily activities they perform. This will yield municipal sustainability and financial resiliency through efficient and effective coordinated activity led by your workforce.

To learn more about applicable LEAN examples in municipal operations, please contact Mark DeClercq at Applied Asset Management Consultants for a free consultation. As a retired top manager and City Engineer for the City of Grand Rapids, Michigan, Mark has first-hand experience of LEAN value stream mapping, A3 models, and 5S methodology within municipal business operations.

¹ LEAN THINKING, by James P. Womack and Daniel T. Jones, copyright 1996, 2003.

² Institute of Asset Management, Conceptual Model for Asset Management, copyright 2020.



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