

# Applying Lean Concept and Improving Value Stream For the Construction Industry

## White Paper

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## Executive Summary

The construction industry is fraught challenges all over the world. Scope creep, plan for a job not reflecting actual site on ground, change of information in various phases of the project, wasted time in meetings, improper coordination amongst various stakeholders, information gaps and the like, eventually leading to delayed project deliveries and increase in costs.

To tackle all these challenges, it becomes imperative for the project manager have easy access to relevant information before taking decisions. This can be achieved if a project has an efficient system of Information Flow. One of the ways to achieve this is by following the principle of Lean Concept.

Lean Concept has been widely adopted across many industries (including FMCG / Automobile) based on the philosophy of improving project productivity by eliminating waste and non-value adding activities. The goal of lean thinking is to improve the *Value Stream* in which all actions that create no value are removed, thus separating value from waste, since value is actually what the customer pays for.

NoteVault helps in creating an efficient system of information flow whereby the project participants can effectively communicate information with each other, and help enhance the value stream of any project.

By using a personal mobile phone, field workers on the ground who regularly need to send information, but have no laptops to send reports in real time, can now do so easily and in the moment. By calling a local, project telephone number, workers can speak a 'note' that then gets collated with other notes they and their colleagues have left throughout the day. NoteVault then captures this data and transforms it into text in the form of a PDF report and makes it available for the back office managers in real time. Not only that, the report also compiles pictures sent from the site.

The managers don't have to wait for the next day's meeting to discuss issues. Problems and issues can now be escalated to the managers in the time that they occur, so that they can take timely decisions and actions, finally impacting performance of a project.

By enhancing information flow, management can make use of this information in various ways that can augment the project performance, save any unplanned costs and apply lean concept to achieve a strong value stream.

- Managers can keep a strict eye on quality control and safety through essential information gathered from the ground.
- They can save time spent in chasing staff for reports and monitor their performance.
- A third party date and time stamped record enables them to present concrete proofs in case of a dispute (usually many months after an issue actually happened) and reduce liquidated damages where they were actually not responsible for, and also increase the return on claims.
- Non-value adding activities from the information flow can now be identified, and made sure that they are not replicated in the current or any future project, thus helping in eliminating time wasted.

Finally, a strong reporting system not only helps in saving time and so money, but also helps build a credibility tool to win new customers and retain the existing ones.



## Challenges in Construction

- Scope creep (due to new requirements or modifications to existing ones)
- Changing of information at various phases of the project, right from planning and design to construction
- Excessive time spent in meetings due to lack of proper project information detail
- Plan for a job not reflecting actual project on the ground
- Delayed or wrong information provided to the construction company by the client
- Lack of proper coordination with subcontractors to track daily progress

These are some of the issues faced by construction industries these days, thus hampering project productivity and eventually resulting in delays and increased costs.

To overcome these complex issues, the job of a construction or project manager becomes to analyse the details and then take precise actions and decisions which can be done only if they have correct information in hand from their project team.

And to get this information in a correct manner, it becomes vital for them to create an efficient system of **Information Flow**, whereby project participants can communicate project information effectively, as well as easily extract information from the system.

One of the ways to achieve this efficiently is by following the principle of **Lean Concept**.

## Lean Concept For Information Flow

Lean concept is a widely accepted code adopted by many industries these days and it is based on the philosophy of improving project productivity, quality and time by eliminating waste and non-value adding activities.

Information handling in the construction industry often gets messed up due to spending a lot of time in gathering, compiling, storing and sharing data. This is compounded when more time is spent in sorting out incorrect or missing pieces of information, thus leading to delayed actions and decisions, finally leading to delayed project deliveries.

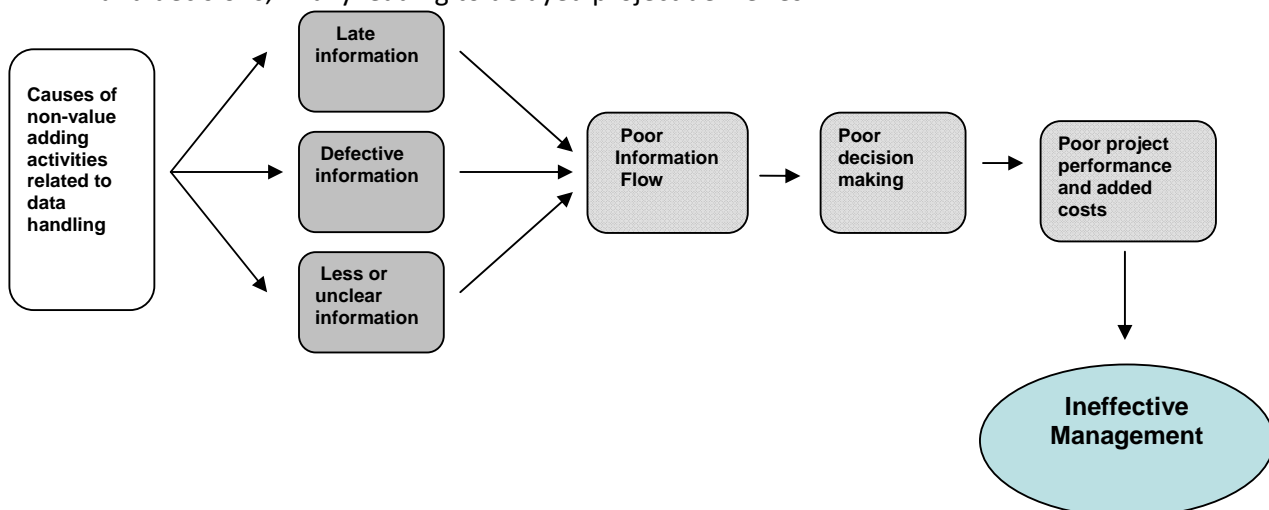


Fig. 1 Causes of non-value adding activities in organization management and its effect

## Value Stream Approach

Value stream is a set of actions that bring products or services to the customer. In the value stream there are actions that create value and there are actions that create no value. And value is actually what the customer pays for. The goal of lean thinking is that the product or service flows on a value stream that has non-value adding actions eliminated, thus separating value from waste. Since NoteVault helps build a powerful information flow system, it gets easy for managers to spot the non-value adding activities in the system. They can then make sure that these activities are no more engaged in a project, and not repeated for any of their existing or future projects, thus enabling create a strong value stream. Strong value stream means money incurred only for value.

## NOTEVAULT

NoteVault is designed to improve communication and coordination between all project team members, and thus helps in creating an effective system of Information flow that is vital to the progress and success of an organization.

NoteVault is a **voice to text** mobile dictation service designed specifically with construction industry in mind. [NoteVault](#) simplifies and dramatically improves the collection and dissemination of field reported information by allowing field workers to do their reporting from their mobile phone (using their voice). It immediately delivers transcribed, printable reports to any authorized recipient via the web.

## Lean Concept and Value Stream through NoteVault

**Monitor Employee Performance:** Managers can now monitor progress of the site, while not being actually present on the ground.

**Administer Safety:** Whilst cost saving considerations are important, job-site safety and accident prevention are paramount. Managers can keep an eye on safety with information and pictures that are shared, and whether the team members are strictly adhering to building standards.

**Quality Control:** It goes without saying that quality in construction has to be maintained in duration of the project throughout. Managers can use proven records via NoteVault of managing strict quality control as a credibility tool to present to their prospective clients, and further increase chances of business.

**Improving investor confidence:** Investors can be updated regularly via images captured at various stages in the project, avoiding the need for them to visit the construction sites.

**Managing insurance:** Insuring a construction project site is not only costly, it also can be difficult at times. By presenting a potential insurer with the option of sharing images and providing track record of superior quality control you had through NoteVault, you automatically increase your chances of obtaining the type of insurance that you need to fully cover the project.

**Saving Time and so, Money:** By efficient use of NoteVault, team members can eliminate wasted time that they experienced in the past in the form of hand writing reports, waiting for the manager to arrive at site before the project progressed, or waiting for the next day's

meeting to discuss issues. Instead, real time delivery of information will enable managers to take timely actions, ultimately avoiding delays and saving costs that can be in terms of:

- **Liquidated damages:** Often due to lack of detailed proof, contractors can end up giving discounts for which they are actually not responsible. Liquidated damages can be sizeable.

Fig. 2 below depicts how NoteVault contributes to only a small portion of the price of the project, but the money saved far more adds to the profit.

Project period	1 year	
	AED	USD
Project cost (an estimate of a small project)	100,000,000	27,226,073
Liquidated damages @ approx. 10% p.a. (maximum cap as per UAE Contracts Liquidated Damages Clause)	10,000,000	2,722,607
Liquidated damages per day	27,397	7,459
NV cost estimated p.a.	50,000	13,613
<b>NV pays back in less than two days of the cost of LD. Remaining amount saved adds to the profit of the company</b>		

- o **Returns on claims:** There can be various reasons a contractor submits claims to owners, major ones being change or variation order, delays caused by owner in terms of oral change orders or delay in making payments. <sup>1</sup>Research shows that in the year 2005, 1.1 billion US dollars worth of claims were requested by the contractors in the UAE (it is difficult to say if these figures are inflated or realistic), but only 16% of it was awarded to them by the owners.

By comprehensive reporting, contractors would have significant information available date / time stamped, reducing discovery time as NoteVault already creates a history of events captured on the ground. By presenting concrete proof, companies are in much stronger position when chasing claims, which can be significant in terms of project profitability.

**Reduce unnecessary meetings:** Although meetings are important for information gathering and handling work problems, often they can be time wasting when

- there is no critical information to share or information is missing
- there are no decisions to make
- meetings go on for too long and participants are not able to concentrate
- one topic might take too long for other to be raised, hence wasting time of the other participant

To save time in meetings, if managers are already aware of issues occurring already on the ground, they can filter the required issues for the agenda and call only required participants to attend, thus saving everybody's time.

**Efficient report handling:** Sharing of information between invited team members can keep everybody on the same page, enabling them to better coordinate with each other and improve the work process flow.

<sup>1</sup> www.sciencedirect.com

## **NoteVault Features**

- It has the capability to record events in the time that they occur, and effectively convert them into text and give Daily Progress Report to assigned stakeholders, so that they can have the information as well as view the progress on the site in real time.
- It is third party date and time stamped, so that it provides independent reference to records.
- Users get their own User IDs and passwords, so that they can log in to the website to gain access to information, apart from being able to edit or add any more information or pictures.

*Fig. 3 Pictorial illustration of how NoteVault benefits a customer*

