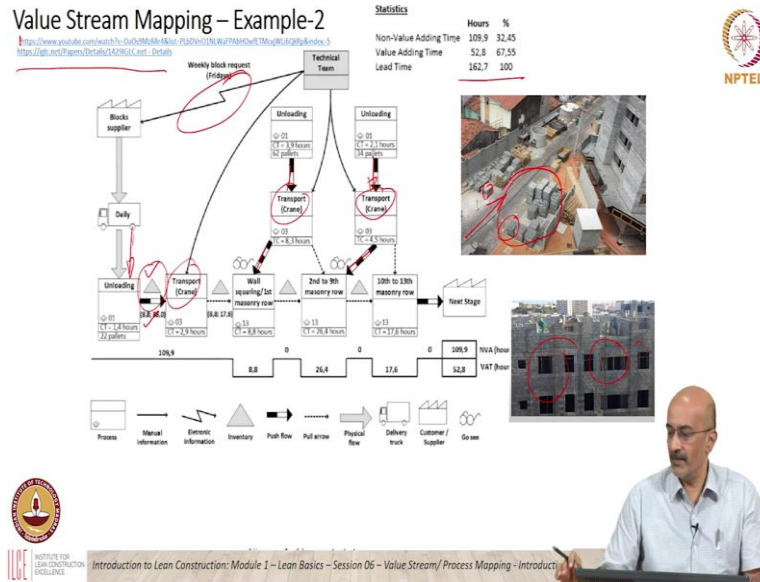


Introduction to Lean Construction
Professor Koshy Varghese
Department of Civil Engineering
Indian Institute of Technology, Madras
Module 1 Lecture 39
VSM – Example 2 (Blockwork); Summary

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Now, I am giving, I am going to cover a second example just to illustrate, how VSM can be used in multiple places in multiple types of situations. So, this is a case study which is document in IGLC paper, you can see the reference here. There is also a video of the presentation available on YouTube and this has to do with block, block work being brought to site unloaded in a truck here and these blocks are to shifted to these to the buildings to be installed as it can be seen.

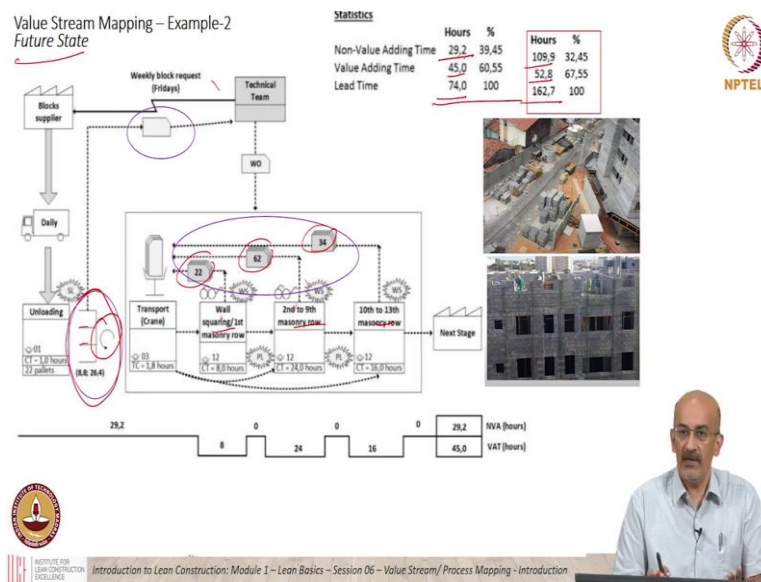
So, the authors of this paper actually did this study and found that when the trucks brought in the blocks they did not have any pattern, they just placed them wherever there was space. And the blocks were of a, you know the specific types of blocks required for specific areas of the buildings.

So, it took a lot of time for the crane operator when they are shifting the block or we have to sort it out it out, do all of that. And so you can see this is their basic current state VSM, so that you can see again, I am not going to go into details you can read through the paper, but they use again the lean symbology, you can see the push symbol here, inventory here, you know, what the way it happens information goes.

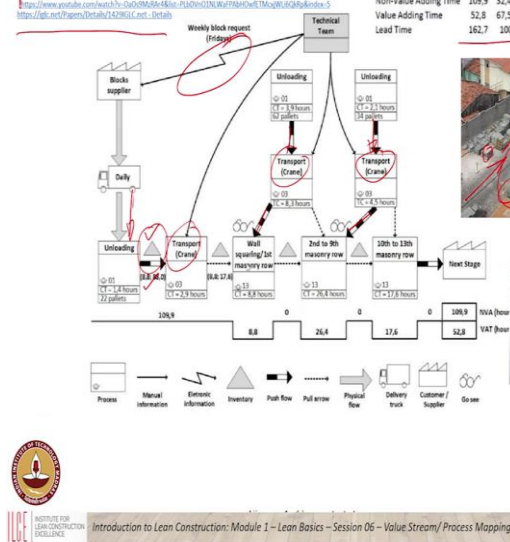
So, basically you have the technical team giving information to the supplier on a weekly basis, there is a daily supply, there is unloading, there is transportation, so, this is the crane transport. It occurs in kind of random ways not so structured ways and this is all a push system.

One of the things I want to bring out here is, there is a push system and there is no particular way in which this is unloaded. And in this particular case, the authors or the researchers have looked at non value added time, value added time and lead time, so, they can get, they are looking at this as the metric. Lead time is non value added time plus value added time. So, what we are calling value adding time as process time plus waste and we are calling this lead time. I just want to illustrate because terminology is not always the same. There is minor difference but concepts are the same.

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Value Stream Mapping – Example-2



In their future state, they have organized this fairly well. One is they have, what they are calling, so in this weekly block request source is a daily request now look at this iconic is called a Supermarket icon. So, what this does is, the block supplier unloads the blocks, communication is sent to the technical team only when this supply is starting to go below a certain level supply is initiated there. So, there is a...

Student: Continuous process.

Professor: There is a pull. So, you can see the pull icon. So, only when there is, when the site needs blocks it is supplied and this block is supplied in an, stored in an organized manner. Now, you can see that, these are the different types of blocks require, here this is 1, 2, 3 and again this is what we called a Kanban icon. All this is coming, when the crane transports it only when there is a request.

In the earlier case, the crane transported it is a push system that is added whenever, here is a block if someone needs it I am going to transport. Here it is a pull system, the transport is done, when somebody decides the need the next set of blocks it is sent to Kanban operate, the crane then takes it.

Student: But sir, in that case the crane may be more idle it will waste.

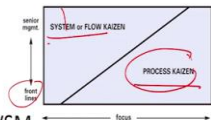

Professor: If it is only for the blocks, but the crane will have other tasks also and then this will be there, you give enough advance notice to when it is during this time you have to give. So, it is a more structured organized system which is not typical on a construction site.



Construction sites tend to be more ad hoc, but causes a lot more waste. And the author has look, has kind of then recalculated these and if you compare the metrics, you can see that in terms of the lead time here is reduced, 74 from 162 is become 74, value added time, 50 because 52 it is reduced. But the non-value-added time was also reduced as may be reduce significantly. So, this basic comparison to show and I also wanted to illustrate some of the other icons and ways in which VSM can be used to communicate, how a pull system can be implemented?



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GETTING BENEFITS FROM VSM

- Support at All Levels
Top Management and Front Lines
- Qualitative Impact vs Quantitative Impact of VSM
Initially Qualitative/Visual -> Later Quantitative
- Ownership
Single point but Collaborative problem solving and obstacle removal
- Use of Visual Tools
Develop and Edit the Future State Map real-time

Introduction to Lean Construction: Module 1 – Lean Basics – Session 06 – Value Stream/ Process Mapping - Introduction

So, to kind of get benefits from a VSM, so these are some of the points I want to summarize with and close up. One is you need support at all level, you need top management and front lines. If we are going to take VSM in a big way. And you should, we should remember this, well, at both levels, we can apply and get benefit. If we had a target what we want and go after, we should not target I mean the target this level and think we are doing this level or try to do this level with only support at the front lines will not work. So, we have to be aligned in the way we do.

The second point is this qualitative versus quantitative. So, when we look at the VSM, the visual impact of the VSM, or the fact that a group of people have to come together and collaborate to create a VSM. A lot of times that itself is a bigger part. The fact that we are sitting together and mapping this process. And this is what the whole team is doing. Doing, it is been documented that a huge impact comes there. The actual quantitative impact the metrics, definitely the simpler metrics give you immediate value. We said there are more

advanced complex metrics, but the team that is doing it has to mature to be able to use those complex metrics some time.

So, it is okay to keep things simple. Keep things visual, keep things to the basic metrics as a start. And once that has happened, you will know when you want to move on to more advanced... Ownership, it is good to have a single point owner, there is one person responsible, but it has to be collaborative problems. It cannot be everybody's responsible, because it will become no body response this. And then for the use of visual tools, like I said, it is a visual tool. There are a lot of software today available just for VSM.

So, this is from VSM. These are typical charting software, and use these tools. And like it says, you develop and edit the future state map real time. So, put, it on a project and discuss with the team see how this has to move? Should we do it there? Should we do it here, learn here use symbology, discuss the symbology what it means. I think it also collaboratively becomes a way of thinking lead when you start improving VSM and the ideas we get.

Student: That the software we can only enable during the transformation plan, right sir?

Professor: No, you can do, no, there is no doubt you have to go to ready to go do the Gemba walk and see what is happening to do the current state, you cannot do the current state map sitting in the office. But once you have done the current state map, you have to brainstorm to get the future state map. That is where, not the tools can be used for current state map also not just a few to use.

But when you are doing the future state you need more brainstorming. And that is also can be through and you are doing real edit, how am I going to change this. The current State map also when you have the draft developed, you show it to the team. And people might agree or disagree with certain way you have mapped certain things that is also very value added. Meaning for the team to understand how the VSM, how all the process works?

So, I might go with a what I think is the current state map after doing my Gemba walk and everything and seeing this is there as you are going and seeing what is that. But somebody that to me says no, this is not exactly like this, I think it is like this and that causes a discussion.

Student: But what I meant was the initial creation of the current state map and we use sticky note kind of thing with the all the people in one place.

Professor: Right.

Student: enable in a way that.

Professor: So, that can be true obviously. I can use sticky notes. And they say that use of sticky notes is helpful to to give a physical feel of what that is.

Student: Yes, exactly.

Professor: As opposed to software which gives me a virtual feel. But I think...

Student: We can transfer from there to here, what I am saying is.

Professor: So, the advantage of using a tool software tool is I do not I mean, I can also do it remote collaboration. So, there are advantages, disadvantages. I do not think again, there is a specific formula, you must use this, you but the sticky notes, the suggestion is, you know...

Student: The second point what we talked about the qualitative impact. So, that is what one of the quantitative impact,

Professor: Quantitative or qualitative?

Student: Qualitative impact.

Professor: Qualitative impact is just in the visual. Now, the point you are talking about having sticky notes and people to collaborate that also impact some collaboration.

Student: Yes, exactly.

Professor: Yeah. So, two paths, if I take the qualitative impact of a VSM is just in the visual look at that what you say, pictures speak more than words and description. So, that picture tells me a lot when I see it. That is one element. But if I am helping to develop the picture, I myself I am collaborating by him as a lot more whether I want to use software, or I want to use sticky notes or I want to use chart. I think all options are workable.

I think definitely, I mean, from a from a more conventional sense, the sticky notes and having people in the room do it is there is something additional physical to it. No doubt about it. But with as things go today, you can see that even remote collaboration are doing it, people are getting comfortable. So, there is no must that I have to use the sticky note approach, although people have got benefit.

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Supplementary Module

Link (to read and contribute)
<https://tinyurl.com/yedshutv>

Workbook

Topics to be Covered Slide

NPTEL

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So, yeah, so there is a lot more reading on this as again, we have only touched the tip of what a VSM is and how to use it and some of the other elements in it, but do go on to the supplementary module for additional. Thank you.

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Quiz

1. Consider the following statements and select the correct option: with respect to value stream mapping

Statement 1: For successful VSM implementation, top management support is needed

Statement 2: VSM can make an either qualitative or quantitative impact

Statement 3: VSM can make an ONLY qualitative impact

Statement 4: VSM can make a qualitative and quantitative impact

- a) All Statements are True
- b) All Statements are False
- c) Statements 2 and 3 are True
- d) Statements 1 and 4 are True
- e) None of the above

d) Statements 1 and 4 are True