

Introduction to Lean Construction
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CPS LPS implementation in Construction Projects through a Panel of Experts - Part 3

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Professor N. Raghavan: From the project sites what has been your experience listening to these two people.

Mr. Mohan Babu Subramaniam: This project sites see that we are going to be implementing the Lean if the management is saying that, yeah, you are going to be implemented. Yes, I agree. Then when coming to the project manager level, the project manager, if you say the 10 project managers in the 10 projects, the 10 project manager mind level is not in the same.

Even though top management is saying to implement the Lean, maybe few project managers are willing to do and few projects are not willing to do. Then if the project managers is also is willing to do, then coming to the site level, planning and the execution engineering also not in aligned with this.

What we use this area, HR management support is very very important for this kind of LPS implementation. As our organization HR management is the most supportive things because they are linked everything in their KRA. When the top management is saying to do the LPS

at site, the project management KRA and site engineer KRA will be there based on the PPC achievement.

So every day every, in this what we got output, every engineers PPC and every project manager performance, every project performance, everything, even regional head's, everybody's are having this KRA based on this. So finally, we agreed that this LPS only will be the organization KRA for this to implement effectively at site level.

So, that we are doing right now and we know every day, every month, each engineer performance. We no need to give some more incentives or more depromoting or whatever may be. They have their own PPC output chart and we have the WhatsApp group also. We are posting on daily and weekly and everything. So, this is what we align.

So, the HR support, it is very very important to every organization, when the top management is very willing to implementing the Lean at site level. So, this is one thing. Yes, we have to move forward in LPS another 10 to 15 years to betterment. I thought in my opinion, in last 7 years, in the last 3-4 years, we are getting clarity about the Lean and Big room and everything, we have a little bit clarity and still we are learning.

So, that is also one of the things and the continuous improvements is getting decreasing right now. Because people are as I told you they are not due to the pandemic also they have financially some crisis, so they are not learning process. So again, we have to resume this learning process through online program or offline program.

Now we again another one here to resume it and also we have the procurement. See, like what we are talking about the construction level, site level. When it is coming to the next level as Kalyan Sir said, MEP like other system contractors, that company and that organisation having the different process difference system of reportings and everything. They are not coming to our, they are not properly collaborating or coordinating with us, what we have the system. So, that has to be aligned that is one thing.

The next would be there now the all the design build projects are right now installing, we are not talking about the construction part. Then designers also should know what is Lean and what is the requirement of Lean. So, the design on drawings online deliverables, these are and all now I think the BIM is the only better tool now we are using this now all the drawings and it is completed before the execution of the work. Right now we are looking for last 2-3 more projects like metro and all they are already pre-designed for the BIMs actually.

So, the design and the drawings and these internal silo, functional department like formwork department, machinery department it is and like other quality department, safety departments they have the silos, so these silos also it has to be know the, what is the site requirement of the Lean. So, first is I think I have covered I think. So, this has to be aligned properly then only what we are thinking the Lean it has to be 100 percent, we can achieve it. But this is quite challenging yes it is a way forward another one or two three days, three years we will see, after 10 years what will be our experience.

Professor N. Raghavan: Very good, you brought a lot of new dimensions from the project experience. I agree I have also been coaching Godrej construction, I found the HR intervention is very very useful very important. So, I made them conduct an HR program at the site to for the change of culture. How do you learn to trust people, that is a very very important point in Lean. So, I would like that we I think I learned a lot of things on the side just to conclude any particular point.

Professor Dr. Koshy Varghese: Yes, there is one more point to bring up. So, in this journey on Lean or even in the journey on implementing CPS, last planner system there will be a maturity level right. And it is very difficult so we read case studies from abroad or you know how people are benefit benefiting from last planner and they might be at a high maturity level. It is very difficult for an organization which is not implementing this to go in one-step to a higher maturity level.

So, this is a journey and in some ways you have to plan milestones on this journey and you know target those milestones or the low-hanging fruit as Kalyan mentioned earlier and this Lean is again or LPS is a journey and we have to plot the map you know and plot where the maturity level is and where we are today and what we need to target a few a year or two from now, reach there and then go for the next target. So, keeping this journey in mind is a very very important way requirement in planning how to implement Lean.

Professor N. Raghavan: Very good. You need to start.

Mr. Kalyan Vaidyanathan: Actually, I was going to say I fully endorsed that HR thing. In fact recently we started working with the learning and develop, LD, learning and development part of Tata projects. So, they have said that you know we want to create the culture so it is kind of made as an L and D initiative.

But again with the idea that it eventually become part of the KRAs of the at least the site engineers and the project managers and people in planning to, so I think the idea of HR intervention is something we strongly endorse I think that is our experience as well, so.

Professor N. Raghavan: So, Mr. Mohan Babu you have to add something finally.

Mr. Mohan Babu Subramaniam: I think most of the points we got discussed I think so. My improvement is that the way forward in another way forward from the already be implemented. We have some other some of the points and tools we have to implement like COLPLASSE, one of the report system, it is easily to prepare that then digitalization like mobile apps. If it is there, it will be used for next site engineer level like WhatsApp, Swiggy, they have the very clear tracking and everything.

So, we have to articulate session in the report generations. So, it will be very easy to use so that the engineer can be site engineers and foreman can be used for very. See now all the engineers, foreman having the smartphone. So, we do not need to provide anything, so as long as this phone is there we have to make very digitalization so that the everything will come in control maybe. So, that are the way forward.

And we have to create a more Lean champions that is whatever the target may be. If you are in the 2021, if you are talking about the 2022, you tell me that how many people's Lean champion has a competent Lean champion is graduated and how many peoples are implemented at site.

So, when we are talking about the Lean champion creation certification or whatever may be, then automatically spread in the Indian construction industry. So, that is one of the things. So, and also I told you earlier involve the more companies private limited companies, so like Lean champion when you are creating but the Lean champion will go and work with some other companies.

So, we have to involve more company top managements to come and jointly we start our one or two sites. So, let us know the practice and the output of the LPS then only this is going to be spread all over the India. So now, what we are asking about the 10 companies only. So, that is also we practice so far. So, I am taking about even this and it is a way forward what time as a site level I am thinking, I think, thanks for giving this opportunity to try this.

Professor N. Raghavan: Regarding what you said just now, you know this NPTEL initiative what we have made now, of teaching and certification in Lean which can you know spread to

a lot of people around the country. Do you think this will be useful you know to create more Lean champions?

Mr. Mohan Babu Subramaniam: Teaching

Professor N. Raghavan: Coaching and teaching.

Professor Dr. Koshy Varghese: Yes.

Mr. Mohan Babu Subramaniam: Sir, teaching is okay, what I am going to say the Lean champion to be identified like myself and like we have to make your group or whatever maybe the Lean champion how many Lean champions are in India and how many people are practicing? Learnings are it is a totally difference so people are coming from learning a lot of learnings are there in online program everything. And who is practicing at site level? How many Lean champions are in are align?

Professor Dr. Koshy Varghese: I actually support what Mr. Mohan Babu saying. I think that NPTEL or a course like that will teach you terminology will teach you some concepts but practices applying those concepts learning from it and kind of iterating and fine-tuning it for your situation.

So in addition to this NPTEL, I think ILCE used to have this discussion forums and today with online it should be much more facilitating these discussion forums should be easier and I think people like Mr. Mohan Babu sharing experiences with others as we develop a larger base I think that would be the forum or that would be the kind of system we need to be able to share actually practitioners ideas and take this forward. The teaching will form a base an important base but it would be more at a concept and terminology.

Professor N. Raghavan: You know Mr. Mohan Babu would ILCE we have started a Lean community knowledge sharing platform. We had only one meeting so far we plan to have more such sessions so you know people from all over the country can join in online and talk about their experience and what way they can help each other and so on. So, I think that is something you know what you are talking about so you get to know what the other practicing that.

Professor Dr. Koshy Varghese: That is an important.

Mr. Kalyan Vaidyanathan: Creating a more pervasive, I think marketing the practice so that it becomes a thing that people are willing to adopt then I think you will create demand for the NPTEL course also in a vicarious sort of way.

Professor Dr. Koshy Varghese: Right so.

Professor N. Raghavan: Just for last question I wanted to ask Dr. Koshy, you know, we talked about the dichotomy between this critical traditional critical path method and the Lean methods. But even in Lean the what structuring we do at the beginning; we need to get the sequence again all done by CPM methods to start with. And then, again you know we need to touch base between the milestone schedules and the look ahead plannings from time to time to make sure that we do not, you know, violate the milestones so we are not throwing out the CPM completely overboard.

Professor Dr. Koshy Varghese: Yeah.

Professor N. Raghavan: So, the people should realize that there is some you know touch points.

Professor Dr. Koshy Varghese: So, I totally agree with you we are not throwing out the CPM. So in some ways, the way I look at it is the CPM is your project management framework and your LPS is your process management framework. So, in LPS what you are doing is, managing your production system and construction, I mean, people say is only a project system but at the operational level construction is a production system.

So, in concept, what we are doing is help, so both these systems have to blend together and if you try to bring in your project management systems to manage your production management, there is a conflict there is I mean a lot of sites do it. But there is a tremendous amount of effort to be able to try to do process management through project management systems.

So, you have to blend both the cultures of both have to blend and that is really the challenge. And I think like people like Mohan babu have shown that there is a way forward in this it has been proven that there is a way forward, others will have to take the lead and find their way forward out of this.

Professor N. Raghavan: Very good, well said. I think we need to publicize more success stories. They got more case studies. I think that will definitely be able to help you know we create more Lean champions in project sites.

Mr. Kalyan Vaidyanathan: If I can add to what Professor Koshy said we are working with one organization called Karle Infra, which is a real estate developer, they have sort of adopted EV, earned value management system which is your ANSI 748 at the top as a project management framework if you will, and then they have figured out a nice way to kind of blend the Lean terminology the Lean process into it.

So again, I if I were to state from experience a little more generally, milestone-planning people understand, monthly planning, weekly planning also people understand. That middle layer which constraint log, one who said it a few times which or what we call as the make ready process is where I think the some of the real magic of understanding that process versus production versus the alignment that is that.

Getting people to understand the make ready process we find is a little bit, where people have to unlearn and relearn if you will right. But so the top and the bottom is easy the middle part is tough and if you get the middle part that is where you can blend that project and process that we are talking about here right. So, I find correlations.

Professor N. Raghavan: To make it happen.

Mr. Kalyan Vaidyanathan: Yeah yeah yeah actually.

Professor Dr. Koshy Varghese: That is the production.

Mr. Kalyan Vaidyanathan: But the point is people are not, that is the light bulb that needs to go up, when that goes off right you will see sparks.

Professor N. Raghavan: Eureka moment.

Mr. Kalyan Vaidyanathan: Yes.

Professor N. Raghavan: I think so I think we get a very good panel discussion very interesting to see how you know what exactly is CPS as practiced at sites, what were the enablers, what are we holding it back and what needs to be done in the long run. So, thank you all for the excellent discussion and really hope that you know this paves a way for more and more practice of CPS in the various project sites. Thank you.

Professor Dr. Koshy Varghese: Thank you.

Mr. Kalyan Vaidyanathan: Thank you. Thank you professor thank you for this opportunity and look forward to seeing more Lean.

Professor Dr. Koshy Varghese: Absolutely.

Professor N. Raghavan: Thank you, Mr. Mohan Babu. Thank you for sparing your time.

Mr. Mohan Babu Subramaniam: Thank you bye.

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Session 12 – CPS/ LPS – Case Studies and Panel Discussion - Summary

Topics Covered

- [S12.01](#): Understand the Applications of CPS/LPS through Case Studies
- [S12.02](#): Understand the Barriers and Enablers of CPS/LPS implementation in Construction Projects through a Panel of Academic and Industry Experts
- [Supplementary Module](#)

Introduction to Lean Construction: Module 1 – Lean Basics – Session 12 – CPS/ LPS – Case Studies and Panel Discussion

Supplementary Module

Link (to read and contribute)
<https://tinyurl.com/yf74v4yk>

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Professor N. Raghavan: Hello. Now, we are come to the end of session 12. A very important session on CPS. We had several case studies and a panel discussion between an industry expert industry experts and academic experts. So, the first part we looked at the applications

of CPS through various case studies. It is always good to know what people had done on the site and what benefits they had, what are the problems they had and how they were solved and so on.

Then we looked at specifically the barriers for implementation and what were the enablers for implementation, that we saw through a panel discussion. We had two people from the industry and two people from the academic side. A very interesting discussion. Hope you will get a lot of benefits from that panel discussion. And of course a supplementary module from which you can learn more about CPS. So, this covers a whole lot about CPS and now you should really get cracking and start practicing CPS. All the best. Thank you.