Last Planner System in an infrastructure project

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Background

• Last planner system (LPS)
  • Glenn Ballard and Greg Howell were the ones that invented the LPS and took the lead for its improvement over the last three decades (since 1992)
  • The main focus of LPS is to decline the uncertainty and variability in workflow that have been neglected in traditional project management
  • The LPS also seeks to improve the predictability of the planned activities on the construction site
  • Since the establishment of the LPS by Ballard and Howell, multiple studies have been conducted to evaluate the implementation of LPS in many construction projects.
Research gap

• Few studies have recorded the implementation process in infrastructure projects.
• Less attention has been paid to the behavioural aspects of practitioners during the LPS implementation.

Research questions

• How is PNC going to implement The Last Planner System (LPS) in Minnevika Bridge project?
• What are the challenges that arise during the implementation of LPS?
Research methodology

1- Comprehensive literature review
2- Participant – observations
3- Non-participant – observations
4- Six semi-structured interviews
5- Two surveys
• **Training Phase (Responsibility of the Trainers)**
  - Training sessions
    - Theoretical explanations and used “Villego Simulation” game.
  - Three workshops
    - Introduction to the five Lean principles.
    - Introduction to process mapping
    - Made the phase schedule
    - Started planning the six weeks lookahead
    - Carried out the risk matrix and action plan
  - Six PEP meetings
    - The project team established the weekly work plan (WP).
    - Used Key Performance Indicators (KPIs) to learn from mistakes
Results and discussion

- **Transition point (Responsibility of the Trainers)**
  - The Trainers handed over the system to the Facilitator and the process expert

- **Execution Phase (Responsibility of the Facilitator)**
  - **PEP meetings**
    - The LPS Facilitator controls the system with the help of the process expert by using the same steps learned in the 6 PEP meetings.
  - **Follow-up sessions**
    - The Trainers agreed with the project team to carry out follow-up sessions to make sure that the implementation process is on the right track.

The LPS implementation in Minnevika Bridge project
Results and discussion

Challenges and suggested measures

1) Language barriers (During the Training Phase)
   • Measures: Presentation of the commitments by the Last planner at the end of
     the PEP meeting to assure understanding of what they have committed to and
     definition of the team rules.

2) Newcomers to the PEP meetings (During both phases)
   • Measures: The Trainers or Facilitator demonstrated the LPS to the newcomers
     into detail to reach an equivalent level of knowledge with other participants.

3) Fear of responsibility when making the commitments (mainly from lower-level
   management) (During both phases)
   • Measures: Internal agreement/discussion within different companies about the
     minimum experience needed to be in the PEP meetings in order to make reliable
     weekly plans.
Results and discussion

4) Participants’ resistance to the system
   • Cause: Doubts towards the LPS
   • Measure: Diminish the doubts
     1. Sufficient training
     2. Openness towards the LPS

5) Maintaining the participants’ commitment
   • Measure: Maintain the established trust
     1. The Facilitator should be cautious when using the KPIs
     2. Use the follow-up sessions
Conclusion / lessons Learned

• Infrastructure projects and other construction projects tend to meet similar challenges in the Training Phase
• Full implementation is not enough for a successful system
• Well experienced Trainers are vital
• Openness towards the system is a requirement from all.
• The facilitator should help with maintaining the trust by using the incremental strategy at the beginning of the Execution Phase.

• Further study: the impact of the follow-up sessions
Thank you!