



QUANTITATIVE FRAMEWORK FOR MEASURING EFFECTIVENESS OF BIG ROOM

Paper ID: 119

Authors:

Hrishikesh Sanatkumar Joshi; Santhosh Jayarajan;
Kalyan Vaidyanathan; Ganesh Devkar

Introduction

- Construction project is a complex socio-technical system
- Big Room
 - Infuse an environment of collaboration with respect for people
 - Co-location space for collaboration
 - Discussed widely in the lean community
- Need for a collective measure to assess effectiveness of Big Room meetings
- Development of Big Room Effectiveness Index (BREI)

Literature Review



- Two measures relating to collaboration and look-ahead planning
 - Elements, mindset and conduct of Big Room meetings and techniques used to maximize the effectiveness
 - LPS® a lean tool when practiced using Big Room
 - Collaboration in the Big Room to enable pull planning
- Two measures – knowledge building and continuous improvement
 - Knowledge enhancement and continuous improvement
 - Competency building: knowledge and training facilitation
 - Respect for people: sustaining implementation of lean tools, especially LPS®



IGLC 28

BERKELEY, CA 6-12 JULY 2020

28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

Research Methodology

Action research approach

- Plan, Act, Develop and Reflect (Costello 2003)

Real estate developer in India

- Big Room in construction phase
- Need to measure Big Room effectiveness

Plan

- **Brain-storming:** to clarify the objective
- **Validate** the criteria for measurement
- **Categorize** the criteria
- Add **weightages** to measures
- Prepare excel matrix to calculate BREI

Act and Observe

- BREI calculated monthly to gauge health of initiative
- BREI was launched in this project on September 2018

Reflect

- Trend analysis of BREI was discussed

Quantitative Framework: BREI

[definition and purpose]

BREI [Big Room Effectiveness Index]

...is a ‘criteria’ based assessment to measure effectiveness of Big Room implementation.

Purpose

- BREI **intends** to provide feedback to management as well as participants on “what is missing” in an effective BIG Room implementation.
- BREI intends to enhance reliable promising using LPS® and sustain trust amongst Big Room participants and enables them collaborate better.

Application of BREI

[case study in India]

What impacts Big Room outputs?

- In a transitional journey from non-lean to lean culture, there are challenges related to **people, processes, legalities, knowledge of lean tools, improvement** et'al.
- Last Planners often arrive at cross roads where for e.g. managers do not validate new dates even when the dates emerge out of a pull planning session.

Why does this happen?

- Participants confine to contract boundaries when they sense a stale-mate like situation.

Why BREI?

- BREI assessment helps mentors facilitate in a more logical and guided way.
- BREI is not meant to “Control” and hence fosters trust culture.

BREI - case study

[what was working and what was not at a project in India?]

What was working (+):

There was sufficient anecdotal evidence indicating the benefits of the BIG ROOM:

- ✓ Regular Big-Room meetings
- ✓ LPS®: Visual “CAN”
- ✓ Promising by last-planners “WILL”
- ✓ Constraints captured
- ✓ PPC was measured weekly

What was not (±):

- ± PPC as high as 85% yet milestones missed
- ± New milestone dates based on output of Big Room were not accepted by managers.
- ± Last planners started to lose faith in this system and showed withdrawal symptoms.
- ± Managers engaged but constraints not resolved and reliable promising was not achieved.
- ± Blame game started.
- ± Stress in contract teams of various stakeholders.

BREI – Big Room Effectiveness Index

[Criteria and Index]



IGLC 28

BERKELEY, CA 6-12 JULY 2020

28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

ASSESSMENT CRITERIA:

1. Collaboration:

- Enhancing “Trust”

2. Look-ahead planning:

- Reliability (enhance certainty)

3. Knowledge building:

- Learning organization

4. Continuous improvement:

- Kaizen Culture

Big Room Effectiveness Index(BREI)									
Sl.No	Category	Sub Category Measurable Parameter	Sub Category Weightage	Overall Weightage	Maximum Score	Maximum Weighted Score	Weighted Measured Score	Improvement Advice	
1	Collaboration	Commitments Kept	50%	50%	1	0.25	0.050	Needs Attention	
		Constraints Tackled	50%		1	0.25	0.050	Needs Attention	
2	Look Ahead Planning	Variance in Number of Activities per week	40%	30%	1	0.12	0.10	OKAY	
		PPC Achieved	40%		1	0.12	0.11	OKAY	
		Variance in PPC Achieved	20%		1	0.06	0.02	Needs Attention	
3	Knowledge Building and Tools Used	Number of Training Modules Conducted	50%	10%	1	0.05	0.05	OKAY	
		Number of Tools deployed /Used	50%		1	0.05	0.05	OKAY	
4	Continous Improvement	Number of Kaizens received in Last Month.	40%	10%	1	0.04	0.02	Needs Attention	
		Variance in Kaizens in Last 3 Months.	20%		1	0.02	0.02	OKAY	
		Implemented Kaizens in Last Month	40%		1	0.04	0.02	Needs Attention	
Total				100%	10	1	0.48		
Overall Score Key									
								Score	Verdict
								0-0.25	Poor Effectiveness
								0.26-0.50	Moderate Effectiveness
								0.51-0.75	Good Effectiveness
								0.76-1.00	Excellent Effectiveness

BREI – Big Room Effectiveness Index

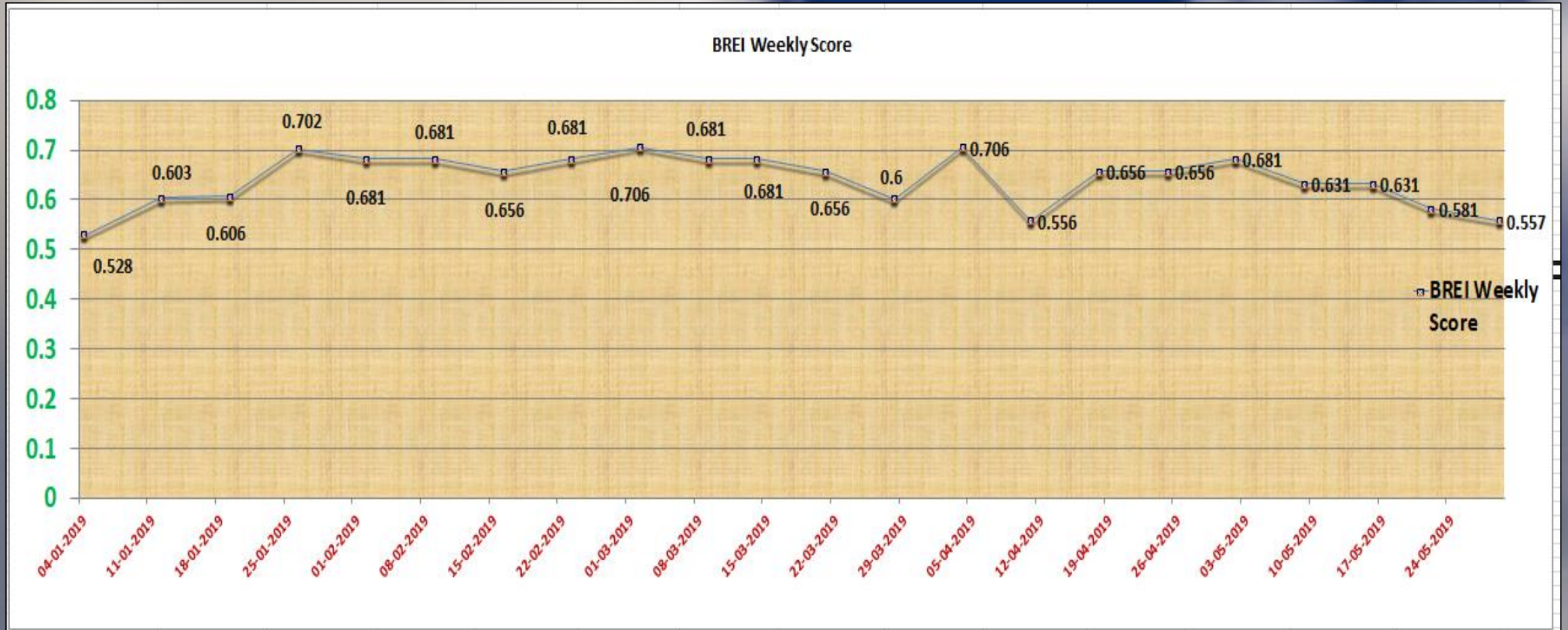
[Trend Study – weekly scores from January till May 2019]



IGLC 28

BERKELEY, CA 6-12 JULY 2020

28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION



Discussion

[BIG Room enhancements with BREI feedback]



Enhancements after BREI feedback:

- Work structure was created with specific Big Room Roles
- Constraint and Kaizen suggestion system implemented
- Last Planners identified and planning approach defined
- BREI and PPC monitoring continues with evidences of reliable feedback

BIG ROOM

[Implementation, Issues and Enhancements after BREI trend study]



IGLC 28

BERKELEY, CA 6-12 JULY 2020

28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

PLANNING APPROACH:

An approach was proposed to create traceability and interoperability between CPM based milestones and LPS®

Only to facilitate transition phase from CPM to LPS®.

Look-ahead planning was carried out as per LPS®:

[Should – Can – Will – Did]

ACHIEVING “SHOULD-CAN-WILL-DID”

- WBS 3 of CPM schedule released by Owner as “SHOULD”
- WBS Level 4 released by PROJECT MANAGERS (as if they as Last Planners at that instance said “WE CAN”)
- PROJECT MANAGERS extracted 6 week look-ahead activities from “WE CAN” schedule.
- Last Planners (Area Managers and Foremen) mentioned constraints to resolve to go from “CAN” to “WILL”.
- Last Planners committed to a weekly “WILL” these were a constraint-free activities filtered from the “CAN” schedule.
- PPC and BREI facilitated the “DID” feedback

BIG ROOM

[Work Structuring based on BREI Trend Study]

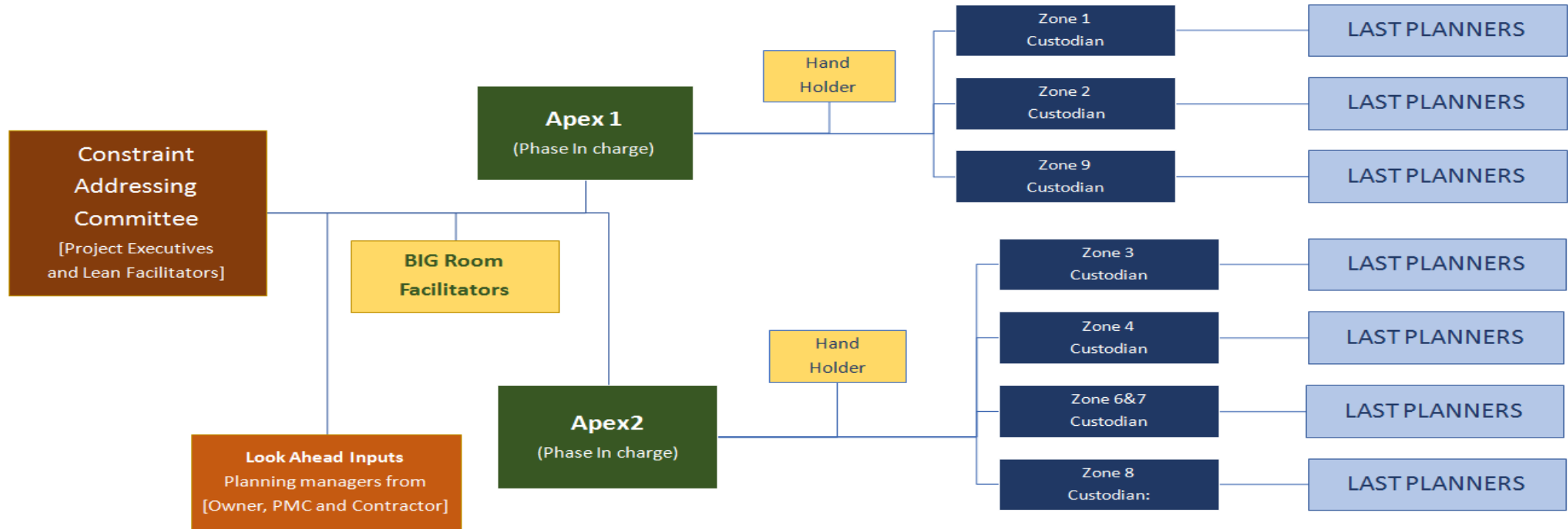


IGLC 28

BERKELEY, CA 6-12 JULY 2020

28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

BIG ROOM Work Structure



CONCLUSION

[What is achieved?]

- 1. A framework to assess the effectiveness of collaborative planning in the Big Room is developed:**
 - a set of 10 parameters were proposed
 - consolidated into four categories.
 - weightages for each of the parameters arrived at
 - team was happy with its induction.
- 2. The trend analysis of this index over a period of time helps in following areas:**
 - in fine tuning working of Big Room
 - built confidence to the decision makers about potential improvements.
 - useful particularly in case of organizations/teams in an early stage of Big Room adoption.
- 3. BREI can be a very useful tool for Lean Coaches worldwide to measure Big Room Effectiveness especially in initial adoption cases.**



IGLC 28

BERKELEY, CA 6-12 JULY 2020

28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

THANK YOU – NAMASTE!