

# *Lean in Construction*

“Making it Happen”

Webinar – 23<sup>rd</sup> Dec,09

BMGI India  
71B Mittal Court Nariman Point  
Mumbai



**BMGI**

# Webinar “Housekeeping” Tips

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- Please disable pop up blockers.
- Please keep your self on mute.

## Asking Questions

- Use the “Raise Hand” icon or “Question / Chat” box in the lower right corner.
- Submit questions as they occur to you by typing in the box, then click submit
- Questions will be answered during Q&A session at the end of the presentation.

# Webinar “Housekeeping” Tips

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## Questions & Answers

- We will do our best to answer as many questions as possible in the allotted time.
- Answer to unanswered questions will be answered on our website/forum soon.
- We shall notify you when they are available

<http://www.bmgi.groupsite.com>

<http://www.bmgindia.com>

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# About Lean

# What is Lean?

Zero  
Losses

5S &  
Visuals

Suggestion  
scheme

Kanban

Standard  
Work

*Maximizing flow of customer “value” by eliminating waste , variability and fatigue*

# History of Lean

“Today & Tomorrow”- Henry Ford, 1926

Automobiles / Airplanes

Chemicals

Textiles

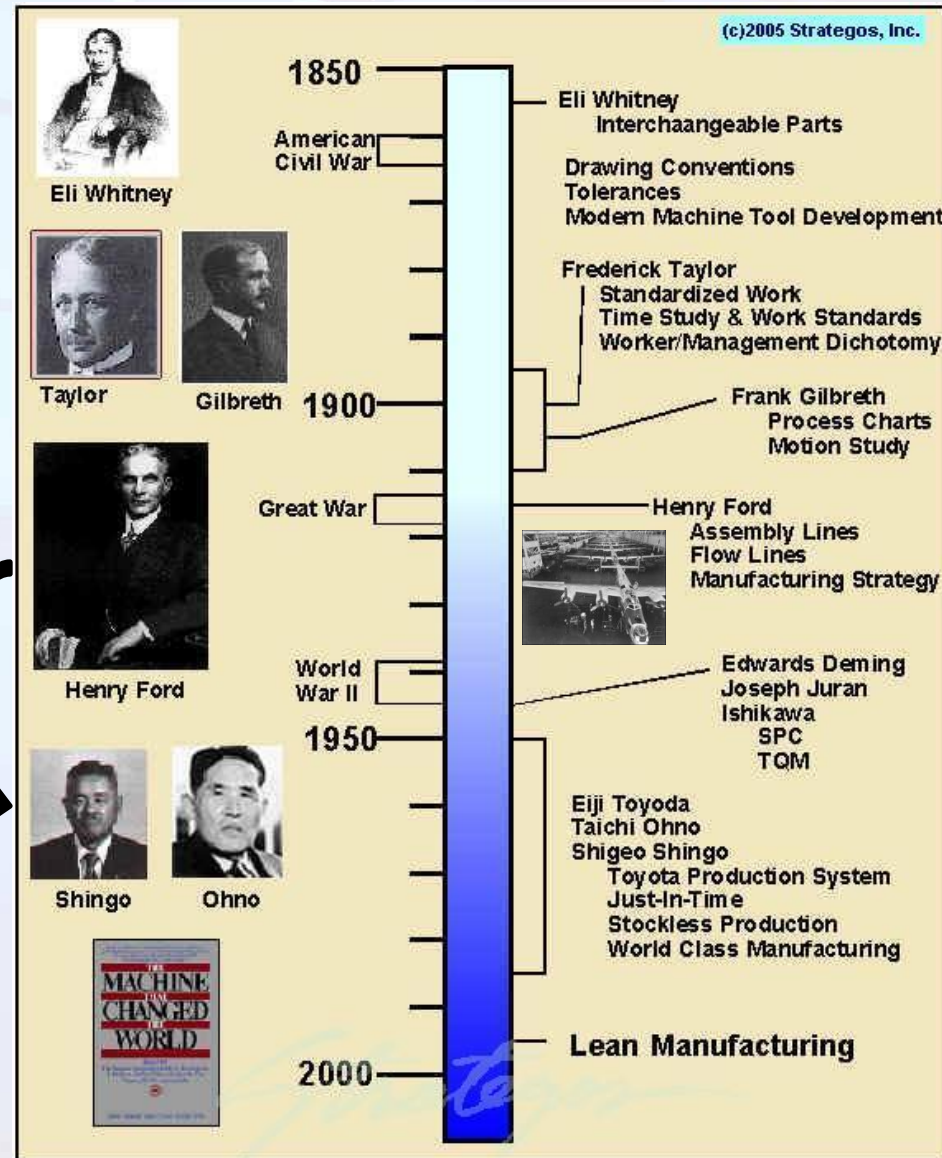
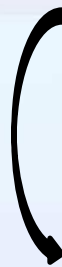
Railroads

Schools

Hospitals

Shipping

600,000 employees



# Poll Question

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In 1926, the time when Henry Ford was making Model T, how long did it take to go from *Iron Ore at the mines to finished product delivered to a customer??*

*81 hours or 3 days & 9 hours*

**What could have  
Ford possibly done?**



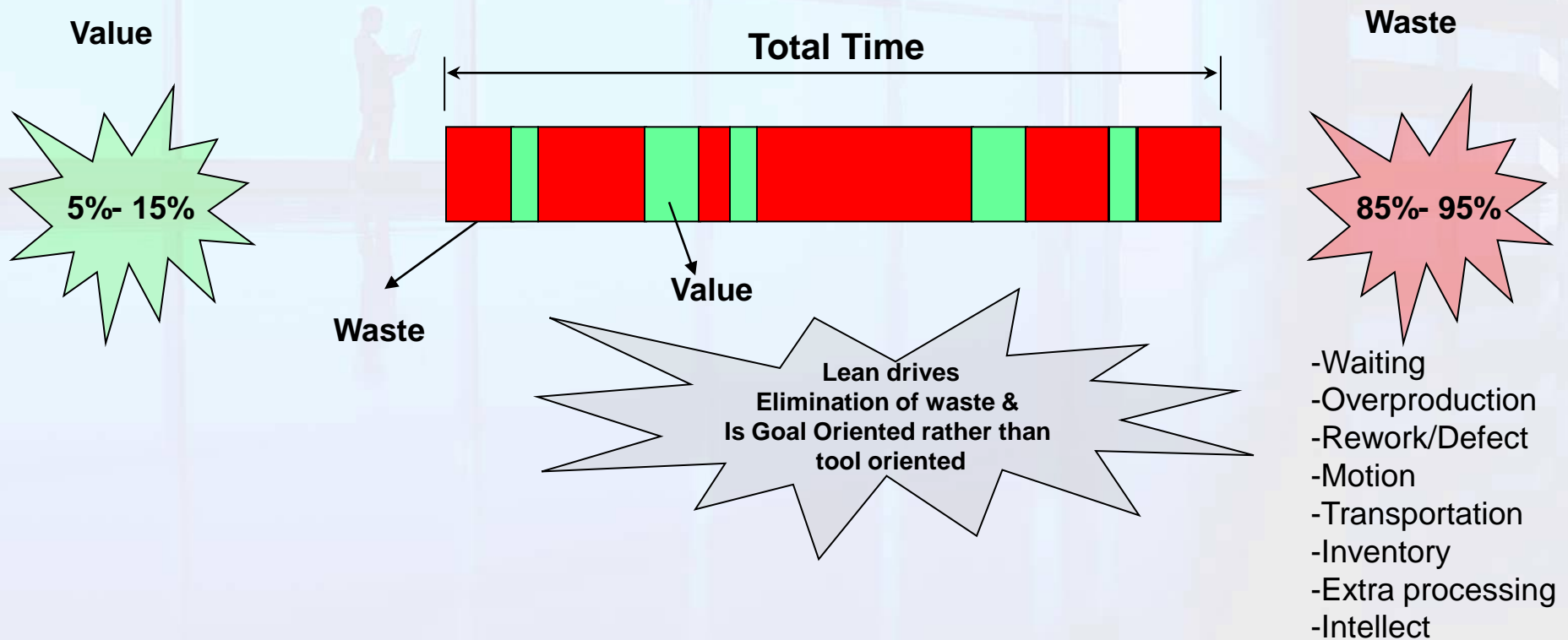
How much Information Technology did Henry Ford have?

*IT is not the solution to the problems, there has to be a sound basis for applying it.*

- How much time does your PO generation process take?
- How long does it take to get a reimbursement?

# The concept..

Work or Time = Value + Waste



Construction Industry Institute publication 2004 "Application of Lean Principles in Construction" reports 75% to 90% of field work is Non-Value added



# New Thinking

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*“If you always DO what you’ve always DONE,  
you’ll always GET what you’ve always GOT*

*Yogi Berra, Baseball Philosopher*

*“If you always THINK what you’ve always THOUGHT,  
then you’ll always DO what you’ve always DONE, and  
you’ll always GET what you’ve always GOT.*

*Greg Howell, Co-founder LEAN Construction Institute*

# Lean is Industry Neutral

- Application of Lean Principles creates a significant competitive advantage



- Custom built product in few days
- Lean supply chain



<http://www.leanconstruction.dk/7957>

- Improved productivity & profitability by 40%
- Reduced pre-construction phase time by 48%



- Transporting customers in relatively small planes
- Breaking the Hub & Spoke paradigms of competitors
- Fast changeover times



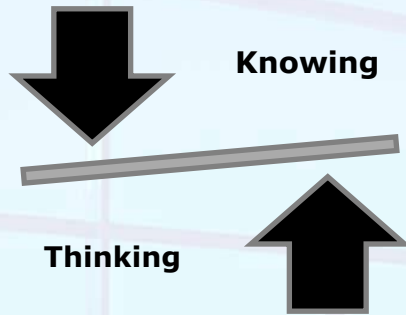
- One of the fastest product development time
- Winner of Shingo excellence award (two units)



- Its stated goal is to have users leave its website asap

*Speed is the absence of Waste*

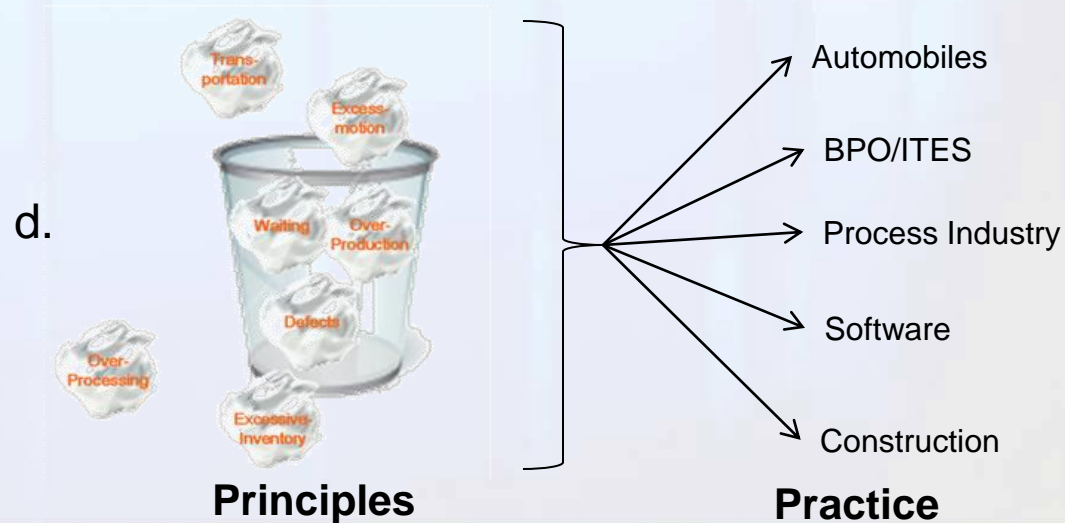
# New Thinking



a. We will know by the number of times we've got it wrong

b. "Know-How"  $\neq$  "Know-Why"

c. Lean is about building **deep knowledge of processes** and **sharing problems with people** so that solutions are easily accepted & Implemented.



# Why is Construction Business different?

-Every project is unique



-Cannot afford rejection and Reworks can be very expensive

-Remote locations



-Geographically spread



-variables impacting the project are very high hence Uncertainty

Construction design →

Components and materials →

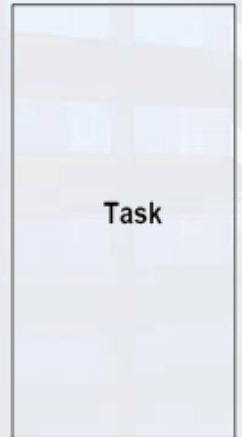
Workers →

Equipment →

Space →

Connecting works →

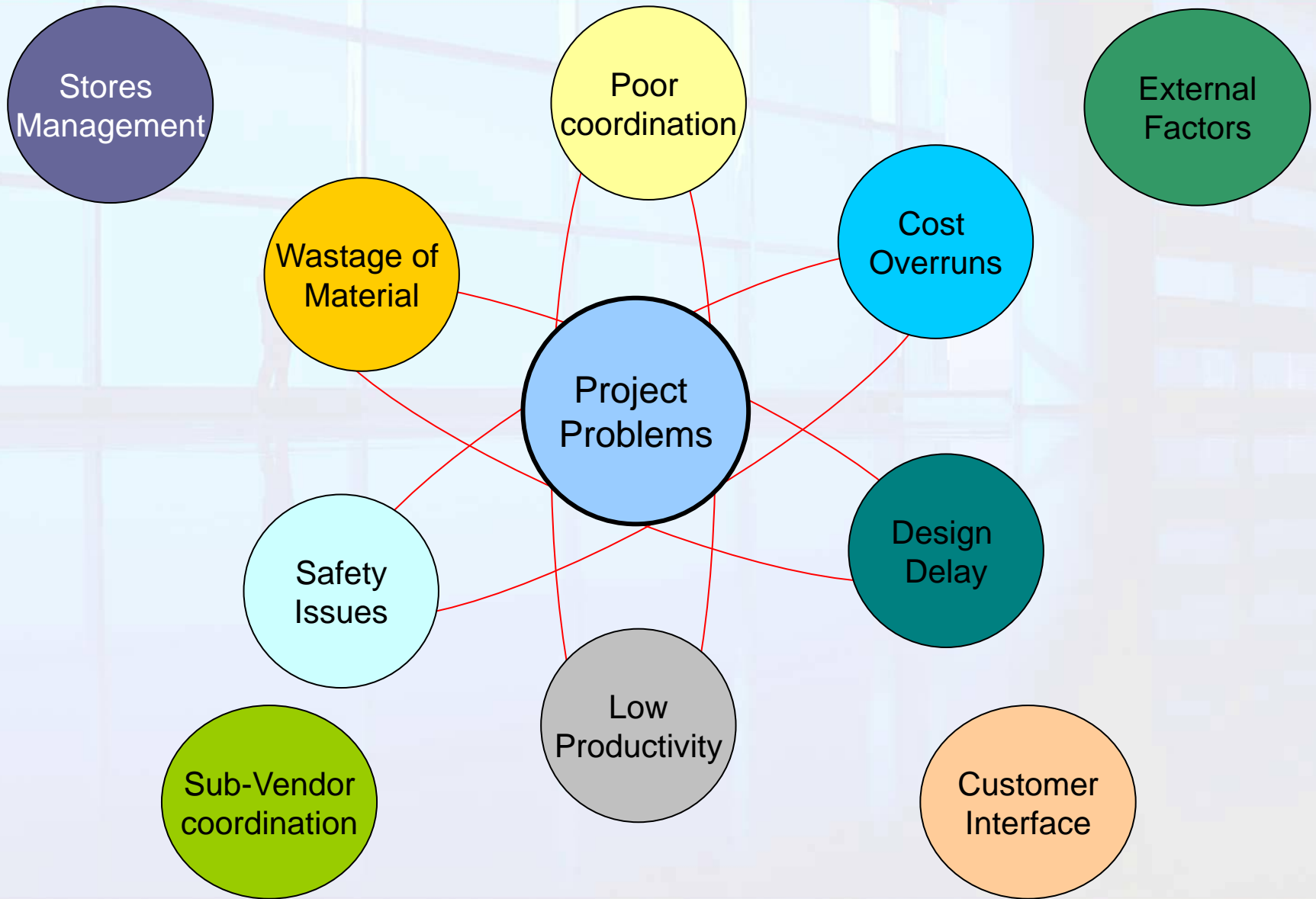
External conditions →



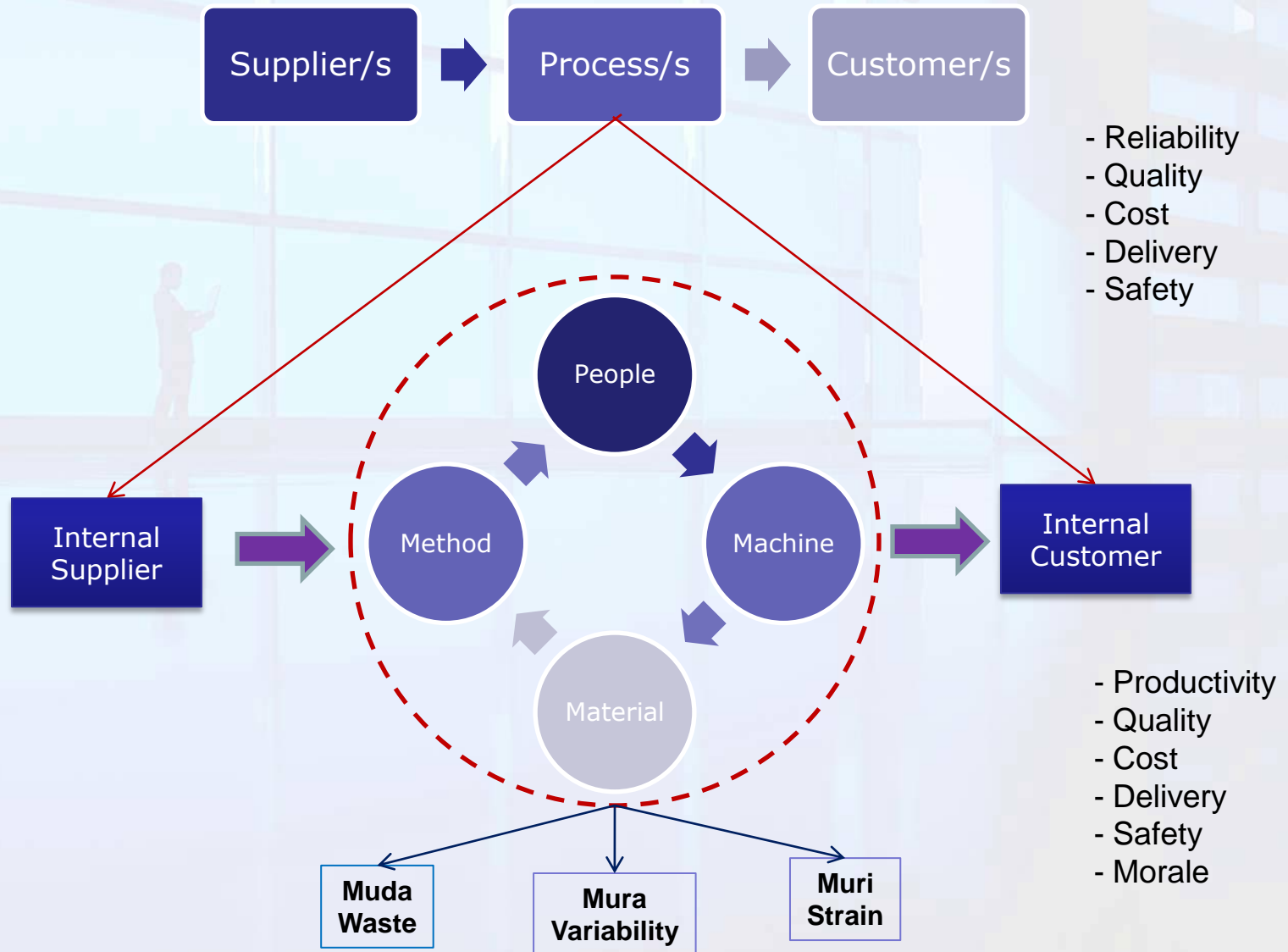
-Physically challenging



# Construction Challenges



# Similarities



# “Follow-up” syndrome

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On an average what % of your time is spent in chasing the progress on commitments made to you? \_\_\_\_\_



On an average what % of your time is spent being chased by others? \_\_\_\_\_

If we can reduce the follow up's by 15%. What do you plan to do with the extra time?

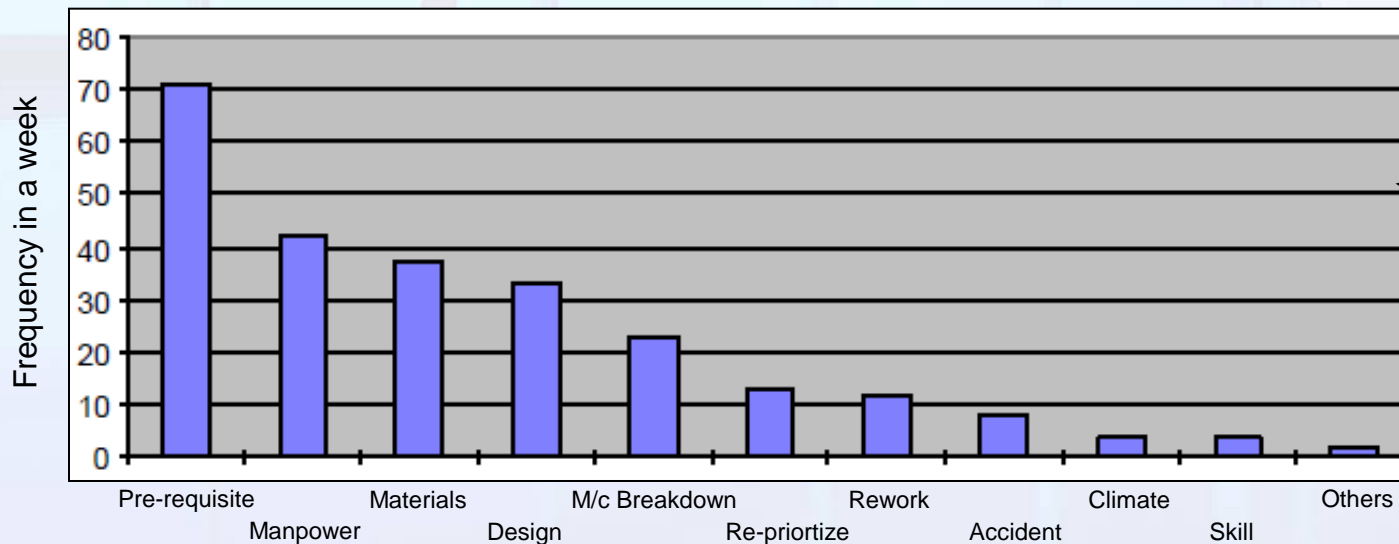
*By directing your time to “Value Added work” as compared to chasing, you can concurrently achieve Cost , Schedule, Quality & Safety improvements.*

*Because of the process being broken, the productivity is hit.*

# Why Lean in Construction?

## Some indicative values\*\*:

- Some 30% of construction work is estimated to be rework (2.5% - 3.5% of revenue)
- 50% of site time is unproductive
- At least 10% of materials are wasted.



How are your sites doing & how are you measuring it?

*A study done by Prof. K C Iyer of IIT Delhi mentions in his research paper that over 40% of the Indian construction projects are facing time overrun ranging from 1 to 252 months.*

**\*\*Mckinsey Study**



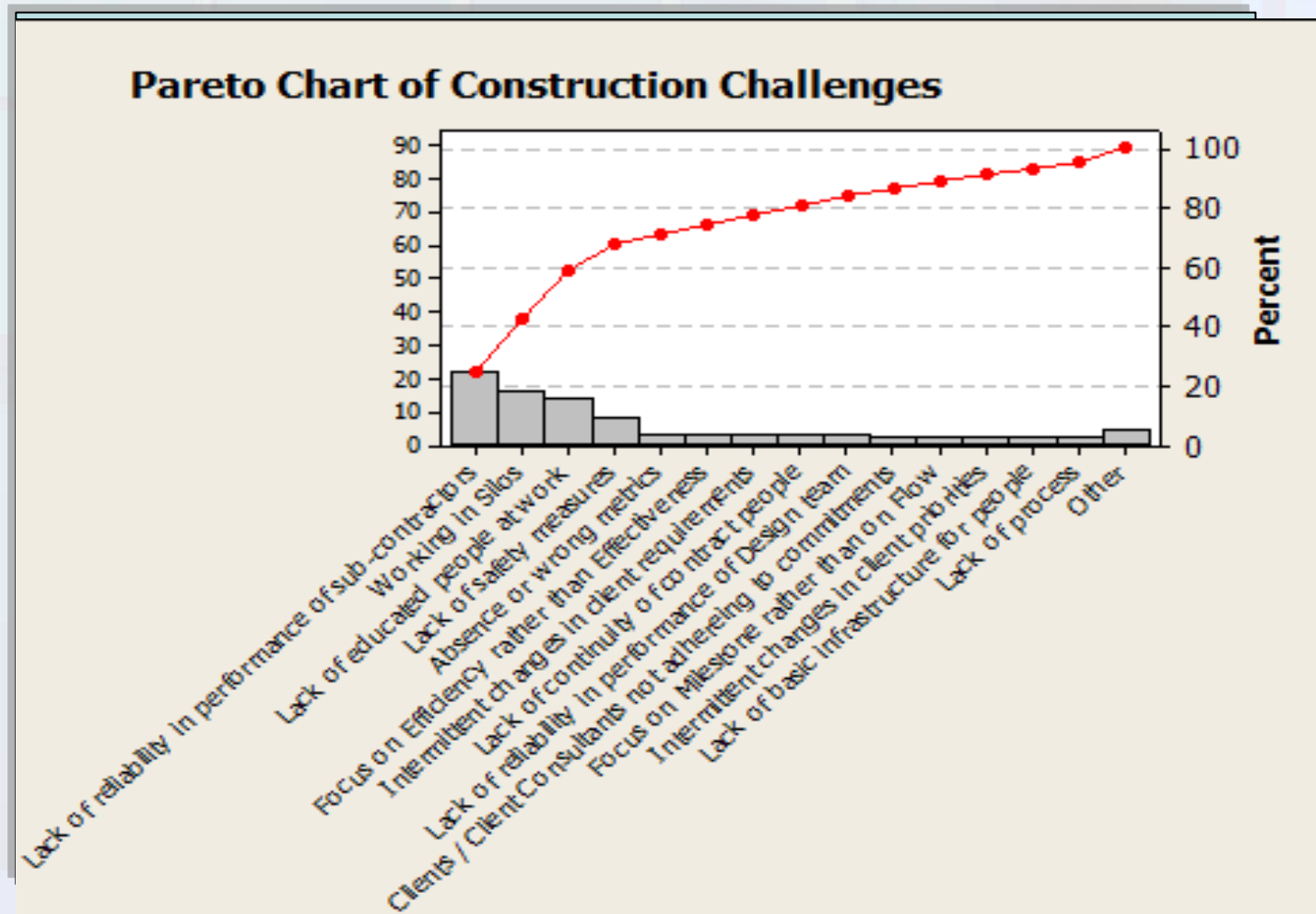
# Understanding Construction Projects

Construction  
Projects



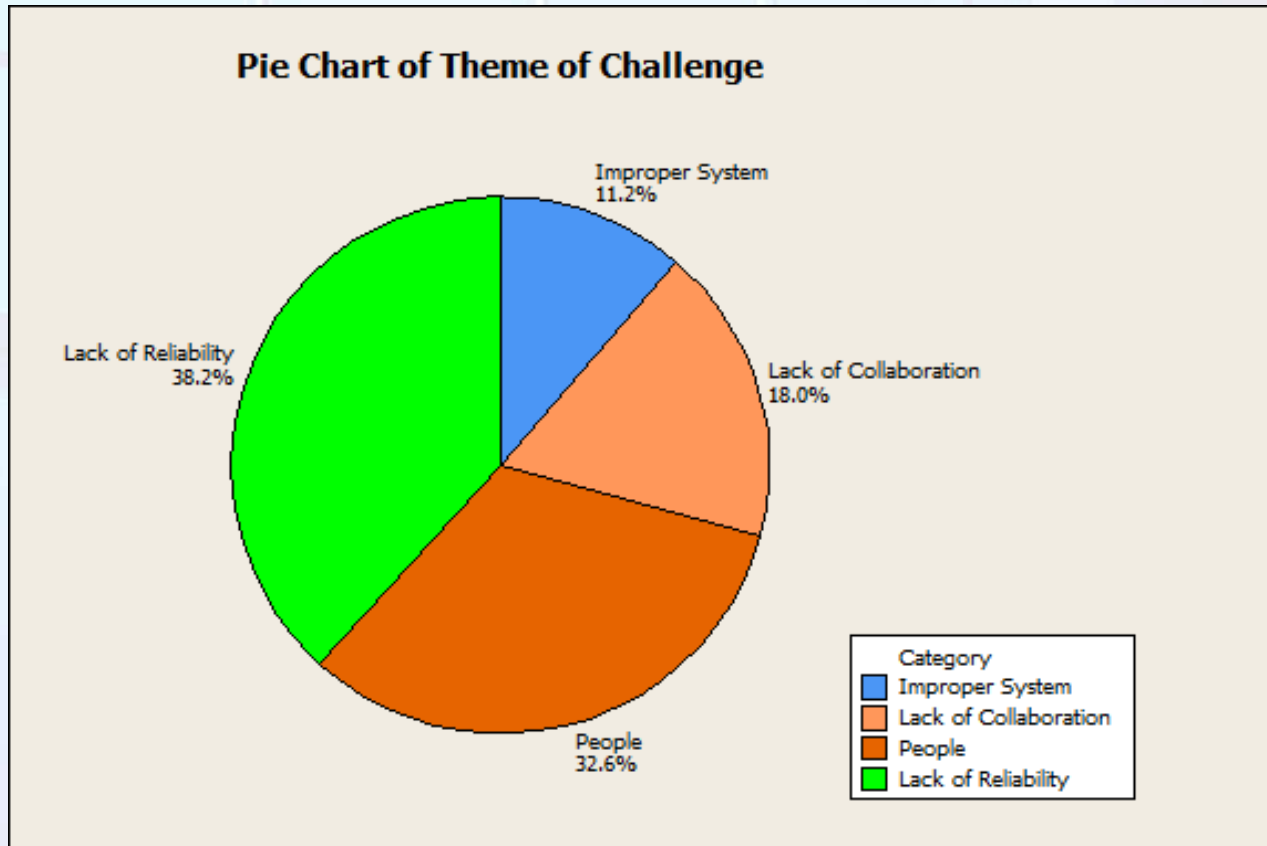
# Key Challenges in Indian Construction

*A survey was conducted with major players in Indian Construction Industry*



# Key Challenges in Indian Construction

*Survey Outcome were organized into four themes*



# CSF's & CFF's in Construction

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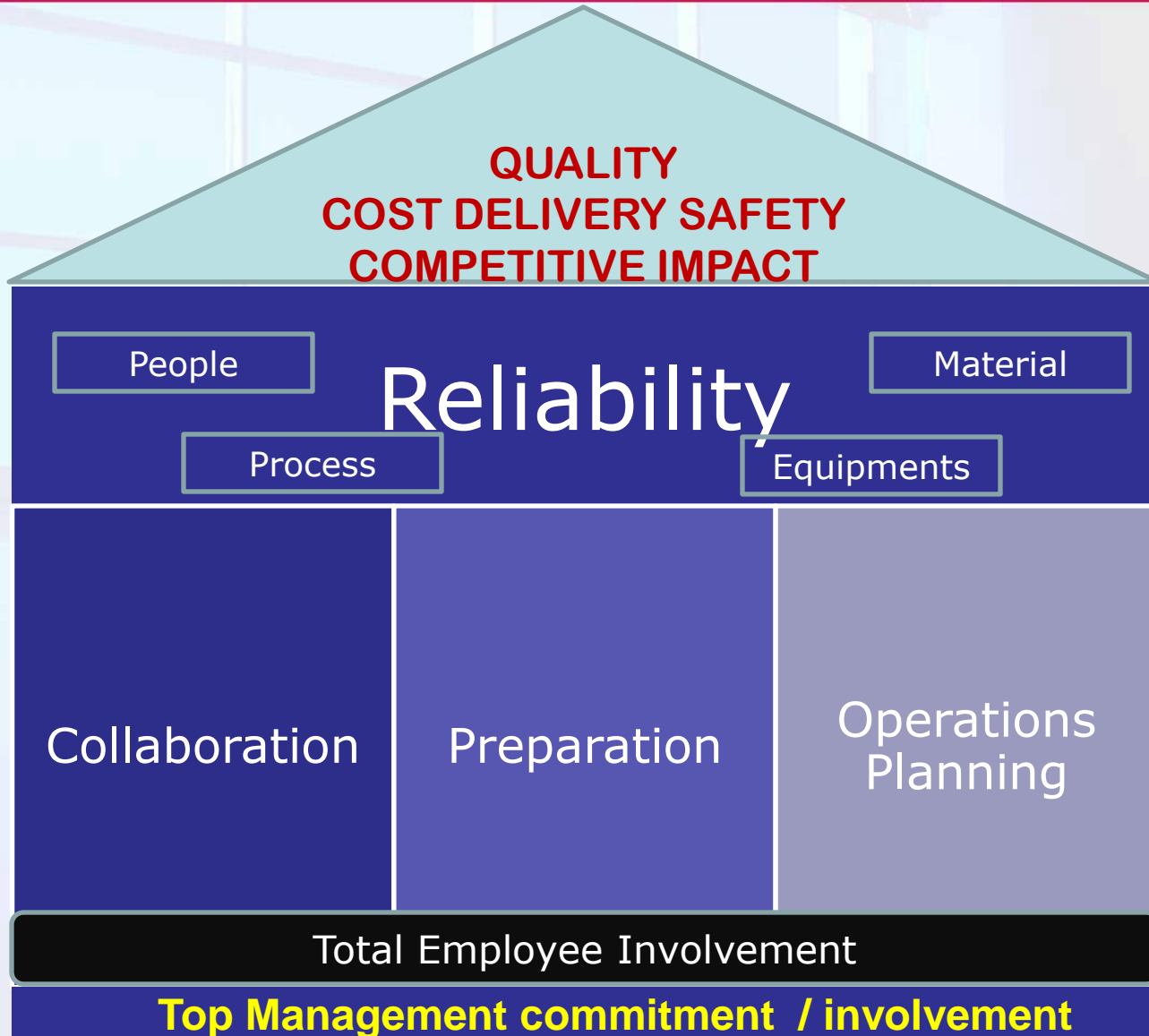
## Critical Success Factors

- Top Management support
- Project Manager's co-ordination & leadership skill
- A system for Monitoring and Feedback.
- Co-ordination between project locations.

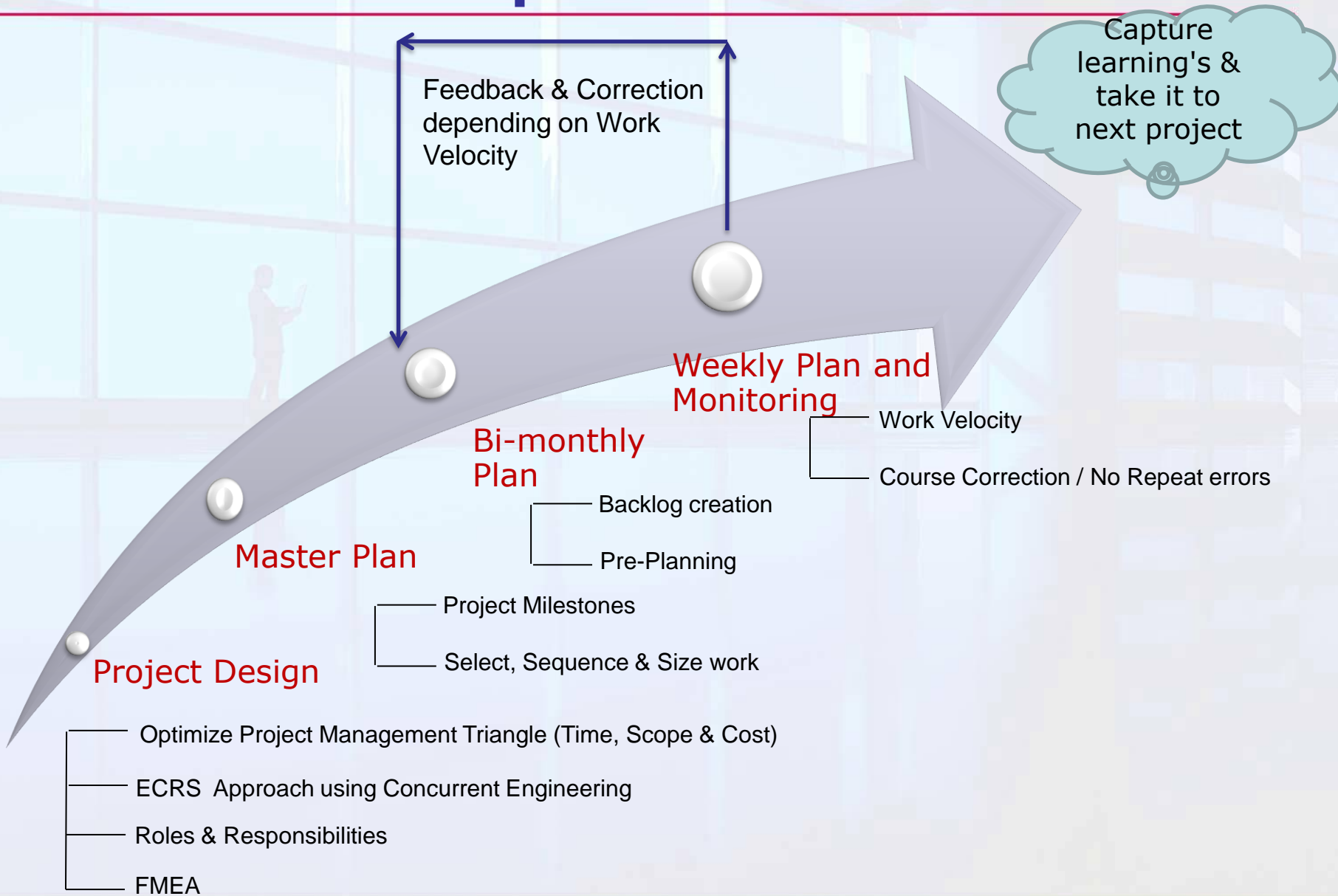
## Critical Failure Factors

- Conflict among participants.
- Lack of synchronization & co-ordination among departments
- Hostile socio-economic and climatic conditions.
- Focus on “productivity” rather than “reliability”.
- Poor work measurement methods.

# Business – Operational Linkage



# The CJIT Roadmap



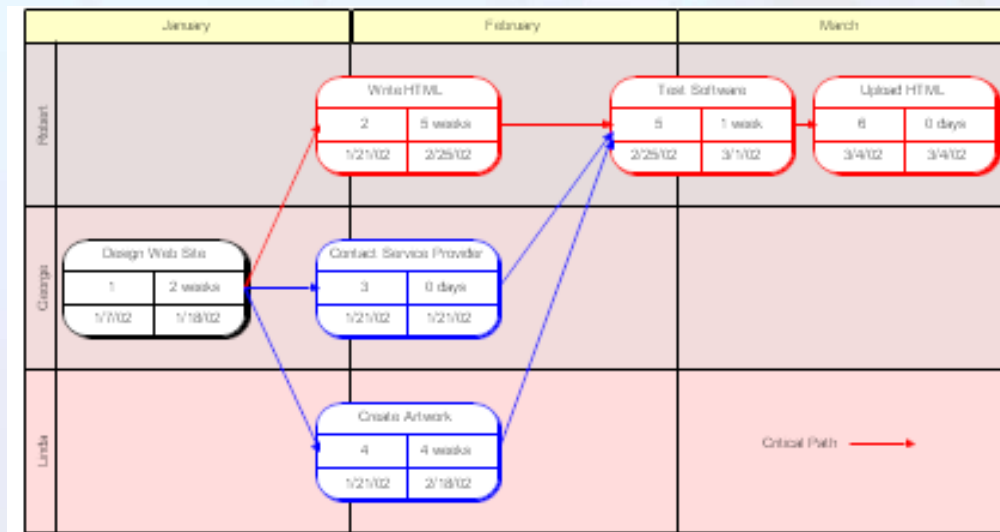
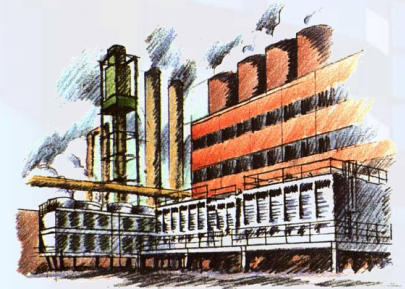
# Case Study 1

## Problem Statement:

-To finish construction of new factory in 15 months

## Current State:

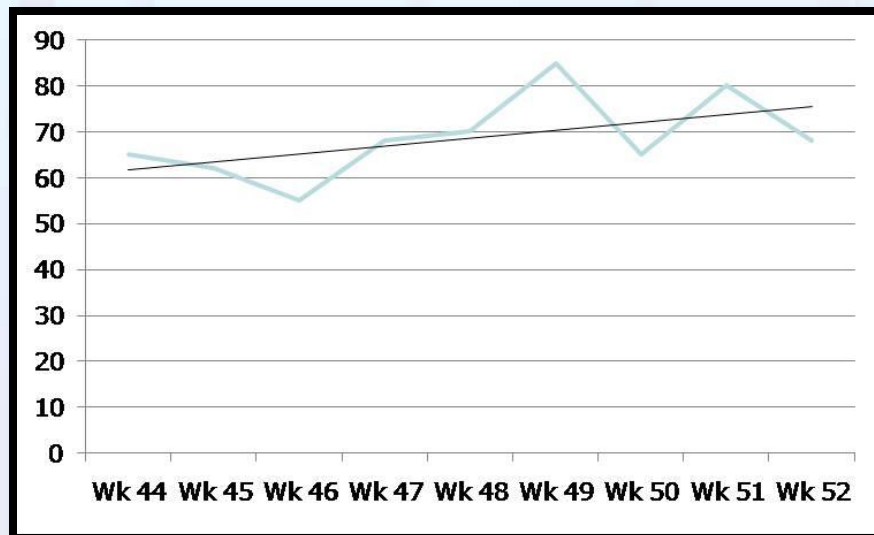
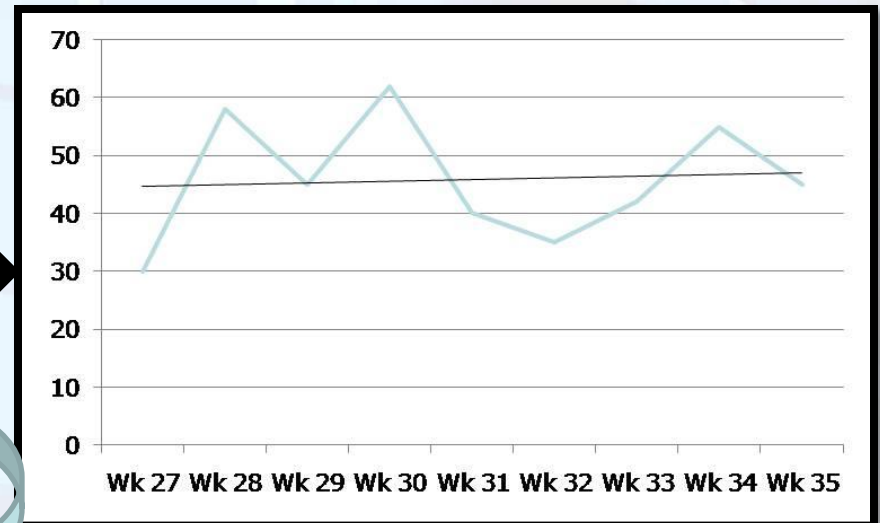
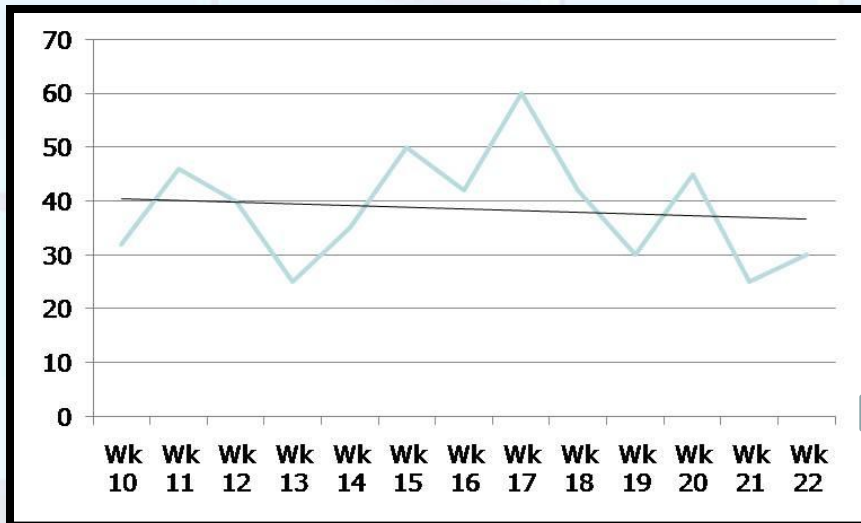
- Traditional "Project Management" approach
- Focus on improving productivity of each activity
- Downstream stakeholders not involved in front end planning
- Focus on variation detection rather than execution.
- Low transparency in the system
- Focus on Macro-level only.







# Case Study 1



Work Velocity Status

# Case Study 2

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## **Business Case**

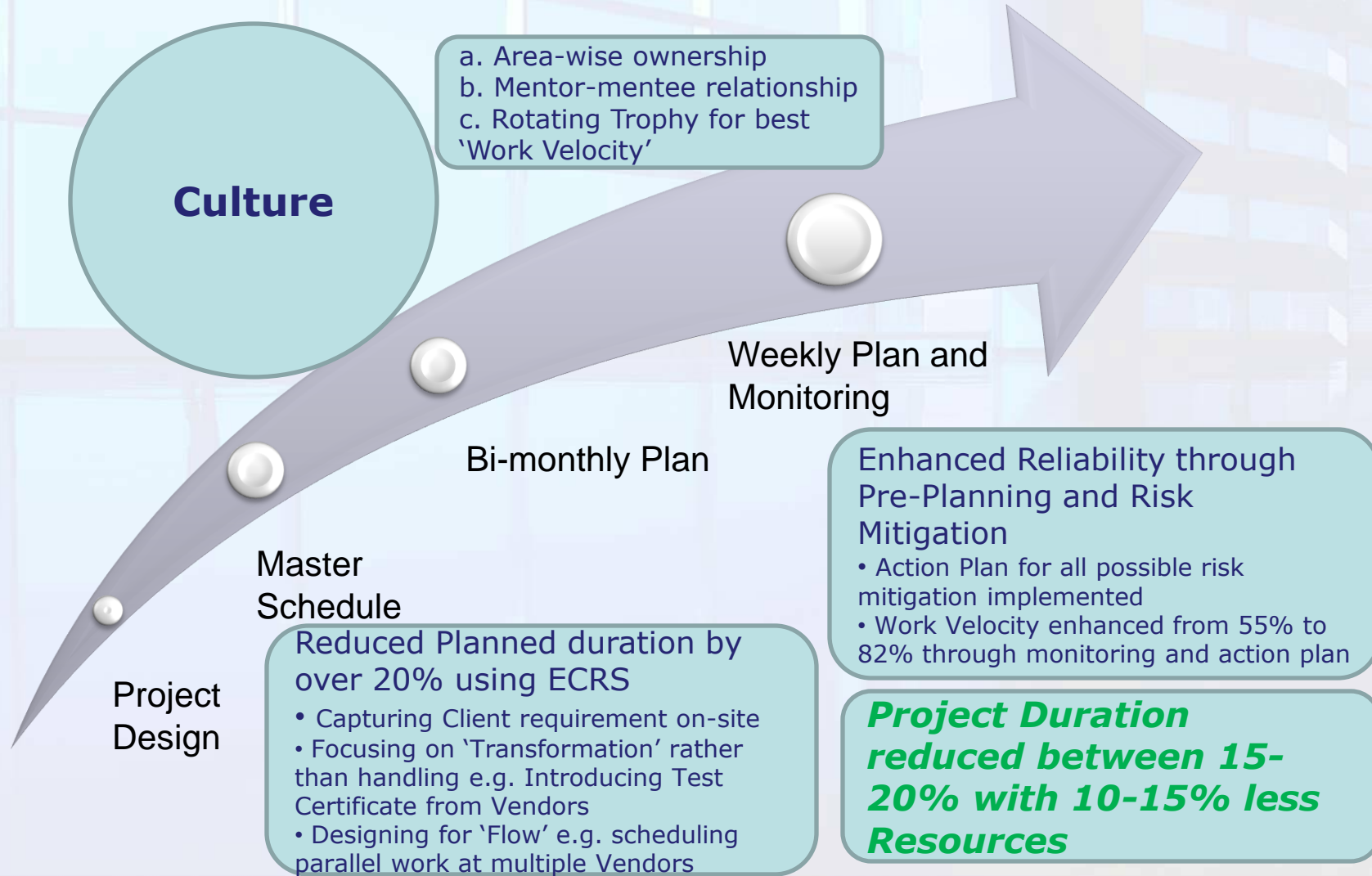
- *A Fabrication vendor for major R&M work in Cement, Power and Process Plants*
- *Chronic delay in meeting delivery schedules*
- *Difficulty in managing multiple projects priorities and between on-site and off-site jobs*

## **Current State Diagnosis**

- *Milestone based Project Management on reactive mode*
- *Focus on Productivity disregard of Project/ Activity priority*
- *Culture of 'Excuse'*
- *Lack of Reliability in Sub-vendor commitments and quality*
- *Chaotic Stores Management*
- *Gap in understanding exact requirements of client resulting into rework and re-plan*
- *Precision jobs dependent on few experts*

# Case Study 2

## Journey through CJIT



# Closing Thought

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“The Greatest Mistake we make is living in constant fear that we will make one”

**Winners practice 'til  
they get it right.  
Champions practice 'til  
they can't get it wrong.**