



Case Study

Embracing Digital Innovation: Our Integrated Project Management System

A summary

At LTHE, our digitalization journey began two decades ago. We were one of the first EPC companies globally to go ahead and implement the SAP solutions for ERP. We have induced digital modules into our project type delivery which was one of the biggest exercises undertaken, where in a lot of employees had to reskill themselves.

At LTHE, we are currently in the process of integrating our EPCC/EPCIC processes using digital technologies to enable integrated and synergized project management of our projects through efficient execution, monitoring and proactive decision making through an Integrated Project Management System (IPMS). This Integrated project management solution is intended to cover end-to-end project execution activities from project award to

completion; encompassing complete flow of documents, material, data, cash, etc. involving project stakeholders.

The IPMS helps in picking relevant data for processes and systems, getting trigger based updates, eliminating discrepancies and gaps in data processed from multiple systems and in offering appropriate process dashboards to internal stakeholders to enable them to take well informed decisions.

IPMS promotes execution of complex projects in tighter schedules, with greater budget assurance and cost assurance. The digital IPMS is an opportunity to leverage and leap forward to the elite league in project management.

The Current Status

Engineering is relatively well digitalized and Procurement is fairly digitalized with systems such as SAP & ERP. There is a lot of scope for digitalization in Construction due to continual dynamics of the phase - most of the times, specialists are required to be placed locally at the plant. Many constraints are observed in terms of certifications. Penetrating the construction part of EPC is currently the biggest challenge.

The Enablers

- Internet bandwidth and access enabling cross geography & real time access to information in a manner that is unprecedented.
- Advances in hardware and software, intense computing possibilities, quicker, cheaper and smaller portable machines.
- Devices that have hardware embedded with essential software that collaborate over the internet, in short, internet of things.

The Challenge

Currently, our project teams use several business applications to perform project activities and generate deliverables for design and other project transactions including

- Industry-standard, commercial "off-the-shelf" products (COTS)
- Custom applications built in-house or through third-party agencies
- Open applications: (e.g. open-source spreadsheets, presentations, reports)

While the systems in isolation are quite evolved and mature, there is a challenge in integrating the workflows and information transfers between the discrete systems. All the applications, either sourced commercially, or developed in-house are fragmented, with several gaps and overlaps in the functionalities. There are differences between the usage of applications within the organisation and the power of new technology for mobility, data acquisition and analytics is yet to be harnessed.





The Solution

The Integrated Project Management System is a comprehensive data management system that compiles work from various databases to enable stakeholders to make data analytics based decisions. It compiles and analyses data to make value added strategies. The Project Management System is centred around a 3D based model that enables rich visualization of data and project parameters. The IPMS works efficiently in planning 3D models at building block levels, thus eliminating the ambiguity and providing space for model adjustments at planning stages itself.

IPMS allows the integration of costing and scheduling into the timeline; both these are customizable and can be changed with changing situations. The management system triggers robust data analytics- tracking a plethora of changes and risks in a continual manner, sending data to relevant stakeholders regarding the same. The IPMS also enables hotspot analysis to indicate crucial points to be focused on during project development, also bringing "hotspots" information to the management knowledge. Data calculation mechanisms are pre-programmed into the IPMS that help generate automatic reports with calculated data.

Through collaborative planning & collaborative reporting, the IPMS works as a portal that records various aspects during various stages of project life cycle, even in a futuristic sense. Status of projects can be easily viewed by project engineers on a single portal.

Based on discussions within the company and after interactions with key stakeholders involved in the project lifecycle, 176 digital initiatives were strategized under the IPMS, covering 6 core areas-Business Acquisition, Proposals & Estimation, Project Execution, Project Completion and Closeout, Senior Management Business Visibility and Enablers (HR, F&A etc.). Initiatives put in place included processes to:

- Improve visualisation of plant execution on a multi-dimensional model.
- Integrate project schedule with cost and resources, thus enabling provision of visually rich reports using industry good practices like Earned Value Management (EVM), Critical Path Method (CPM), Theory of Constraints (TOC), etc.
- Manage risks, opportunities and challenges.
- Improve data collection and analytics.
- Include essential elements of user interface and experience such as visually rich dashboards and reports, mobile device usage, etc.



The Benefits

The Integrated Project Management System would enable improved business outcomes for LTHE, providing an integrated platform for project stakeholders to deliver enhanced results. The benefits anticipated include:

- Futuristic Planning can be undertaken through IPMS to understand resource requirements at various project stages. Project drawings across project life cycle stages can be developed at early project development stage through the use of 3D models. Through such models, system gaps that could occur at various stages can be understood. Based on this, interventions can be put across at the initial stages of project development.
- Informed decision making for all project processes, thus reducing errors.
- Improvement in project risk management & business continuity, since the IPMS models project scenario in a futuristic sense. Alerts are sent to all stakeholders involved in case of prospective risks.
- Cost Benefits - Improvement in project costs and productivity.
- Timeline Benefits - Reduction in project timelines due to speedy processes and schedule improvements. Reduction in rework .
- Visibility Benefits - Increase in transparency through improved visualization across project value chain leading to informed decision making processes.
- Risk Management Benefits - Improvement in Business Continuity Management and Change Management through robust risk management practises, identifying project risks and opportunities.
- Scalability Benefits - Improvement in project scalability and repeatability, enabling multi-location collaboration and project delivery.
- Reliability Benefits - Improvement in project security, project management and confidentiality through sturdy business continuity practises.
- Supply Chain Benefits - Increase in supply chain efficiency.
- Process Benefits - Efficient construction processes.