

# Implementation of ERP System in Project Management & Construction Engineering

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DOI: <https://doi.org/10.5281/zenodo.7875736>

Published Date: 28-April-2023

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**Abstract:** When there are more than one party involved in construction project, their needs and constraints become more and more complicated in a project management. If client is from large organization like public client or a corporate client, then their needs are diversified. In that case constraints in a project may results in the achievement of high-performance by using ERP. The aim and objectives of this research is to identify correct solution for the different Constraints. So, we can able to improve the performance of the work by applying ERP on Constraints. It will help to provide practical steps for creating organizational decisions under tough situations at where there are constraints. As we aware from the constraints, we will definitely improve the performance of the work. Presently client requires to well Familiar with the ERP System before starting of the project, but now we need to understand constraints which is Six-STAR Constraints and which includes constraints regarding Budget Management, Clients Management, Time Management, Cost Management, Resource Management and Sales Management.

**Keywords:** ERP, Budget, Clients, Time, Cost, Resource and Sales, Management.

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## I. INTRODUCTION

If we see with an open eye, there are various constraints in every working environment. But the situation is that, we are unable to find out the way from where these constraints came from. We must put more effort on the project achievement and for that we required small study on various constraints in a construction project. Most of the construction project involves with multi-party participation. In that situation, needs and constraints becomes more and more complicated in a project management and most of the times we unseen these constraints which creates more complication to resolve the problems at the end of the project and we think, "Fully if I had done it earlier". Sometimes these constraints develop into disputes and conflicts, which may directly or indirectly affect to the organization and it may impact on the clients or contractors name.

There are various solutions to reduce these constraints which we are going to discussed below and one of them is, ERP Implementation in the Organization. To successfully delivery of the project, we have to understand the potential constraints in the construction projects and also if we did it successfully then we can reduce unnecessary wastage, able to allocate proper budget for the particular Activity, cost overrun of the project and time overrun of the project can be reduce, also we able to allocate resources in proper manner, able to do proper scheduling for the early completion of the work. These all terms can be manage through ERP.

Every departments under the construction projects have at least one constraint and these constraints shows the relationships between objects and the process. These constraints should decrease or eliminate these with a minimizing waste and make the flow well-organized. Planning and controlling are the two main functions which contributed by construction management. Planning function develops optimal schedule and helps to achieve successfully. In construction projects Time, Cost and Scope are fully depends on the planning. Controlling is the second function which only focused on planning and

implementing, and implementation includes various things such as work task, resource allocation and supply chain management. Removing constraints from the bottle-necked activities are necessary because it reduces the uncertainty in the construction process and it increases the transparency of the project management.

Unwanted effects result the number of constraints and once these problems identified and deals with them, most of the constraints will reduce automatically. We recognize that the Implementation of ERP the first stage to Reduce Six-STAR Constraints in construction projects management and it helps to Project Managers to take better decision and improve the performance of work.

In this journal, firstly classify the various constraints into Six types and these are based on literature review. They are the Constraints regarding Budget, Clients, Time, Cost, Resource and Sales Management. More than 150 questionnaires were sent out to the different level of project managers who have good experience (Minimum 5 Years) in the construction environment, Discussion with the Qualified Lecturers and Clients who are using ERP System to get clear opinion and Site visit to the different level of construction and after completion of these finally collect the data from it and level of impact of ERP Implementation in construction projects will be calculated.

## II. PROJECT MANAGEMENT & CONSTRUCTION ENGINEERING

In the field of Project Management & Construction Engineering, Budget Management, Clients Management, Time Management, Cost Management, Resource Management and Sales Management is very critical to manage. Now we will discuss Below, how we can manage these Six-STAR Constraints through the ERP.

**A) Budget Management:** Funds may be Inflow and / or Outflow into the budget management system and ERP allows us to manage both effectively since we need to manage them in the right way.

As shown in Fig. 1, we can create the total budget in the ERP by allocating it to the specific Department. Once we specify the budget for each and every department, we will immediately receive the whole project budget. The budget type can be any, such as life cycle or Annual.

Additionally, the Multiple reports section allows us to daily monitor budgets.

Project Budget Code1	Department*	Budget Head*	Fund Flow	Budget Head Amount	Fund Flow Percentage	Detailed Budget
<input type="checkbox"/>				0	0	0

**Fig. 1. Project Budget Entries**

**B) Clients Management:** Nowadays, managing clients is really challenging. Additionally, it can be challenging to get accurate reports on Tender Note Details, Client Proposal, Proposal Estimations, Client Advance Payment, Client JMR (Joint Measurement Record), Client Running Bill, Inward Cash-flow, and many more.

We can keep all of the aforementioned data from the Pre-Tendering stage to the post-tendering stage by using ERP. In report format, we can obtain a summary of the client bill. According to the format shown in Figs. 2 and 3, we can easily track Billing, Costing, and Cash Inflow.

Sr	Project Name	Billing Amount	Costing Amount	Cash Inflow
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**Fig. 2. Billing Details**

Sr	Voucher Number	Date	Voucher Type	Sub Project	Amount
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**Fig. 3. Costing Details**

**C) Project Engineering:** In StrategicERP, Time Management, Cost Management and Resource management are grouped into the Project Engineering which is called as PPM Modules (Pre-planning Project Management).

**1) Time Management:** Time is a key component of management discussions. Additionally, the lack of adequate time management technologies is the only reason that 95% of construction projects are delayed. We can quickly lower the percentage rate of delay by implementing ERP.

Even with the use of numerous planning and scheduling tools, we are unable to keep the project on schedule precisely in accordance with our needs since while discussing delays is simple but carrying them out will be much more difficult than we anticipated. However, tracking and monitoring the project will be simpler than we ever imagined after we migrate to the ERP.

Title	Duration	Start Date	End Date	% Comp.	ID	Delay	Predecessor	Total Qty	Dpr Qty
CONSTRUCTION	365 Days	01/06/2021	31/05/2022	0%	1757	0		0.000	0.000
CIVIL WORKS	365 Days	01/06/2021	31/05/2022	0%	1947	0		0.000	0.000
RCC WORKS	365 Days	01/06/2021	31/05/2022	0%	1948	0		0.000	0.000
PLINTH LEVEL RCC WORKS	365 Days	01/06/2021	31/05/2022	0%	2019	0		0.000	0.000
PL - CONCRETE PCC M15- MK	300 Days	01/06/2021	27/03/2022	0%	2020	0		168.000	0.000
PL - CONCRETE- M40-MK	365 Days	01/06/2021	31/05/2022	0%	2021	0		163.000	0.000
STILT FLOOR RCC WORKS	60 Days	01/06/2021	30/07/2021	0%	2022	0		0.000	0.000
STILT - CONCRETE- M40-MK	60 Days	01/06/2021	30/07/2021	0%	2023	0		137.000	0.000
FIRST FLOOR RCC WORKS	60 Days	01/06/2021	30/07/2021	0%	2024	0		0.000	0.000
F1 - CONCRETE- M40-MK	60 Days	01/06/2021	30/07/2021	0%	2025	0		140.000	0.000
TRANSPORTATION CHARGES	140 Days	01/06/2021	18/10/2021	0%	2364	0		0.000	0.000
TRANSPORTATION CHARGES AGAI...	140 Days	01/06/2021	18/10/2021	0%	2365	0		500.000	0.000
BLOCKWORK	60 Days	01/06/2021	30/07/2021	0%	2539	0		0.000	0.000
BLOCK WORK 150MM	60 Days	01/06/2021	30/07/2021	0%	2540	0		126.000	0.000
BLOCK WORK 100MM	20 Days	01/06/2021	20/06/2021	0%	2541	0		22.000	0.000
BLOCK WORK 230MM	4 Days	01/06/2021	04/06/2021	0%	2542	0		2.000	0.000
PLASTERING	35 Days	01/06/2021	05/07/2021	0%	2543	0		0.000	0.000
INTERNAL PLASTERING	25 Days	01/06/2021	25/06/2021	0%	2544	0		785.000	0.000
EXTERNAL PLASTERING	35 Days	01/06/2021	05/07/2021	0%	2545	0		1390.000	0.000
EARTHWORK	90 Days	01/06/2021	29/08/2021	0%	2092	0		0.000	0.000
EARTHWORK EXCAVATION- MANGAL KA...	90 Days	01/06/2021	29/08/2021	0%	2093	0		1.000	0.000
FINISHING	2 Days	01/06/2021	31/05/2021	0%	2530	0		0.000	0.000
CONSULTANCY FEES	365 Days	01/06/2021	31/05/2022	0%	2528	0		0.000	0.000
CONSULTANCY FEES	365 Days	01/06/2021	31/05/2022	0%	2529	0		1.000	0.000

**Fig. 4. Project Bar Chart View Report**

Title	2021							2022				
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
CONSTRUCTION	[Gantt bars for 2021-2022]											
CIVIL WORKS	[Gantt bars for 2021-2022]											
RCC WORKS	[Gantt bars for 2021-2022]											
PLINTH LEVEL RCC WORKS	[Gantt bars for 2021-2022]											
PL - CONCRETE PCC M15- MK	[Gantt bar for 2021]											
PL - CONCRETE- M40-MK	[Gantt bar for 2021-2022]											
STILT FLOOR RCC WORKS	[Gantt bars for 2021]											
STILT - CONCRETE- M40-MK	[Gantt bars for 2021]											
FIRST FLOOR RCC WORKS	[Gantt bars for 2021]											
F1 - CONCRETE- M40-MK	[Gantt bars for 2021]											
TRANSPORTATION CHARGES	[Gantt bars for 2021]											
TRANSPORTATION CHARGES AGAI...	[Gantt bars for 2021]											
BLOCKWORK	[Gantt bars for 2021]											
BLOCK WORK 150MM	[Gantt bars for 2021]											
BLOCK WORK 100MM	[Gantt bars for 2021]											
BLOCK WORK 230MM	[Gantt bars for 2021]											
PLASTERING	[Gantt bars for 2021]											
INTERNAL PLASTERING	[Gantt bars for 2021]											
EXTERNAL PLASTERING	[Gantt bars for 2021]											
EARTHWORK	[Gantt bars for 2021]											
EARTHWORK EXCAVATION- MANGAL KA...	[Gantt bars for 2021]											
FINISHING	[Gantt bars for 2021]											
CONSULTANCY FEES	[Gantt bars for 2021-2022]											
CONSULTANCY FEES	[Gantt bars for 2021-2022]											

**Fig. 5. Project Bar Chart View Report**

The Work Breakdown Structure (WBS), WBS Activities, Percent of Work Completion, Lag and Lead, Successor and Predecessor, Total Qty of the Activity, DPR / WPR / MPR / YPR Quantity of the WBS Activities, and Balance Qty can all be tracked using ERP, as shown in Figs. 4 and 5.

Also, We can track the projects by using ERP, as per our required filters such as Start Date, End Date, Project wise, Sub Project Wise, Level Wise, Activity Wise as shown in the Fig. 6.

Also we can add or less the filter fields by customizing report as per the requirements.

**Fig. 6. Engineering Report**

## 2) Cost Management:

The Table I. shows that how much rating are given by the professional leaders, for co-ordination, labour availability, material related problems, payment related problems, communication, financial status of contractor, involvement of more parties, availability of equipment's, method of construction and site management.

As shown in Table I. there are three categories in the rating scale which are, in between 1-3 referred as Poor management, 4-7 referred as medium level management and 8-10 referred as Good level management. In most of the construction projects, their professionals believes that they are still in the medium level of resource management. Now we will discuss for those replies which are in the range of 4-7. Out of 125 replies for Material related problems 105 replies goes with the medium level of management. For Payment related problems 118 replies faced payment related problems and they rated for medium. 90 replies rated as medium level of Communication. For Co-ordination 89 replies comes for medium level. 107 replies for Financial status of contractor. 132 replies comes for Labour availability. 119 replies comes for Involvement of more parties. 86 replies comes for Availability of equipment. 106 professionals are facing problems regarding Method of Construction and 91 professionals are rated for medium level of Site Management.

**TABLE I. Cost Management Problems**

Category	Total Response	Rating scale									
		1	2	3	4	5	6	7	8	9	10
<b>Material related problems</b>	125	00	00	00	03	75	19	08	19	01	00
<b>Payment related problems</b>	125	00	00	00	03	74	17	24	00	05	02
<b>Communication</b>	125	00	00	01	02	76	07	05	34	00	00
<b>Co-ordination</b>	125	00	00	01	00	4	77	08	33	02	00
<b>Financial status of contractor</b>	125	00	00	00	01	75	05	26	16	01	01
<b>Labour availability</b>	125	00	00	00	04	5	94	20	02	00	00
<b>Involvement of more parties</b>	125	01	00	01	17	73	22	07	02	02	00
<b>Availability of equipment</b>	125	00	00	16	02	74	08	02	21	02	00
<b>Method of construction</b>	125	00	00	01	00	73	27	06	16	02	00
<b>Site management</b>	125	00	00	00	00	76	12	03	32	02	00

Due to lack of Cost control technologies and numerous issues in construction projects, the cost of projects are getting higher and higher. We can control cost overrun by Implementing ERP.

By using ERP technology, we can track Budget without having dependency as shown in Fig. 7, we can maintain Transparency in the Cash Outflow as shown in Fig. 8, we can track Project Costing Summary as shown in Fig. 9.

Project Name\*  Sub Project\*

WBS Codes\*

Activity Codes\*

Estimation Summary : Total 5

Sr	Activity Code	Activity Name	Total Qty	Unit	Material Est Amt	Service Est Amt	Equipment Est Amt	Miscellaneous Est Amt	Activity Estimated Rate	Total Estimated Amount
1	LL01-MANGAL KARYALAY-EW	EARTHWORK EXCAVATION-MANGAL KARYALAY	1.00	Nos	0.00	4,84,650.00	0.00	0.00	4,84,650.00	4,84,650.00
2	LL01-MANGAL KARYALAY-F1-CON-MK	CONCRETE- M40-MK	40.00	CuM	7,57,792.80	0.00	0.00	0.00	18,944.82	7,57,792.80
3	LL01-MANGAL KARYALAY-PL-CON-MK	CONCRETE- M40-MK	163.00	CuM	22,38,405.66	0.00	0.00	0.00	13,732.55	22,38,405.65
4	LL01-MANGAL KARYALAY-PL-CON-PCC	CONCRETE PCC M15- MK	168.00	CuM	5,14,066.56	0.00	0.00	0.00	3,059.92	5,14,066.56
5	LL01-MANGAL KARYALAY-STILT-CON-MK	CONCRETE- M40-MK	137.00	CuM	12,21,920.34	0.00	0.00	0.00	8,919.13	12,21,920.81
					<b>47,32,185.36</b>	<b>4,84,650.00</b>	<b>0.00</b>	<b>0.00</b>		<b>52,16,835.82</b>

Fig. 7. Budget Summary

Project Name\*  Sub Project\*

Level\*

From Date\*  To Date\*

Report

Sr	Activity Name	Qty	Act Estm. Rate	2021-06::Total Outflow	2021-07::Total Outflow	2021-08::Total Outflow	2021-09::Total Outflow	2021-10::Total Outflow	2021-11::Total Outflow	2021-12::Total Outflow	2022-01::Total Outflow	2022-02::Total Outflow
1	BLOCK WORK 100MM	22.00	5,646.24	1,24,217.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	BLOCK WORK 150MM	126.00	9,567.78	6,02,770.14	6,02,770.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	BLOCK WORK 230MM	2.00	6,290.24	12,580.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	CONSULTANCY FEES	1.00	8,85,000.00	72,739.73	75,164.38	75,164.38	72,739.73	75,164.38	72,739.73	75,164.38	75,164.38	67,890.41
5	EARTHWORK EXCAVATION- MANGAL KARYALAY	1.00	4,00,850.00	1,33,616.67	1,38,070.56	1,29,162.78	0.00	0.00	0.00	0.00	0.00	0.00
6	EXTERNAL PLASTERING	1,390.00	618.33	7,36,696.03	1,22,782.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	CONCRETE- M40-MK	140.00	14,861.60	10,40,312.00	10,40,312.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	INTERNAL PLASTERING	785.00	736.83	5,78,411.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	CONCRETE- M40-MK	163.00	21,941.15	2,93,951.30	3,03,749.67	3,03,749.67	2,93,951.30	3,03,749.67	3,03,749.67	3,03,749.67	3,03,749.67	2,74,354.54
10	CONCRETE PCC M15- MK	168.00	3,484.30	58,536.24	60,487.45	60,487.45	58,536.24	60,487.45	58,536.24	60,487.45	60,487.45	54,633.82
11	CONCRETE- M40-MK	137.00	15,082.26	10,33,134.81	10,33,134.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	TRANSPORTATION CHARGES AGAINST R...	500.00	945.00	1,01,250.00	1,04,625.00	1,04,625.00	1,01,250.00	60,750.00	0.00	0.00	0.00	0.00
				47,88,216.22	34,81,096.68	6,73,189.28	5,26,477.26	5,00,151.51	4,25,227.26	4,39,401.51	4,39,401.51	3,96,878.78

Fig. 8. Cash Outflow

Project Name\*  Sub Project\*

Level\*  Activity Name\*

Project Costing Summary | Level Wise Summary | Activity Not Started | Activity Not Completed | Overdue Activities

Level	Activity Name	Total Qty	Unit	Rate	Actual Work Done Qty (DPR)	Perc. Work Planned	Perc. Work Completed	Actual Cost	Planned Value	Budgeted At Completion	Earned Value	Cost Variance	Schedule Variance	Estimated At Completion	Estimated To Completion	
F1	CONCRETE- M40-MK	140.00	CuM	14,861.60	0.00	100.00	0.00	0.00	20,80,624.00	20,80,624.00	0.00	0.00	-20,80,624.00	20,80,624.00	20,80,624.00	
	BLOCK WORK 150MM	126.00	CuM	9,567.78	0.00	100.00	0.00	0.00	12,05,540.28	12,05,540.28	0.00	0.00	-12,05,540.28	12,05,540.28	12,05,540.28	
	BLOCK WORK 100MM	22.00	CuM	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	BLOCK WORK 230MM	2.00	CuM	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	CONSULTANCY FEES	1.00	Nos	8,85,000.00	0.00	100.00	0.00	0.00	8,85,000.00	8,85,000.00	0.00	0.00	-8,85,000.00	8,85,000.00	8,85,000.00	
	EARTHWORK EXCAVATION-MANGAL KARYALAY	1.00	Nos	4,00,850.00	0.00	100.00	0.00	5,56,805.60	4,00,850.00	4,00,850.00	0.00	-5,56,805.60	-4,00,850.00	9,57,655.60	4,00,850.00	
	INTERNAL PLASTERING	785.00	SQM	736.83	0.00	100.00	0.00	0.00	5,78,411.55	5,78,411.55	0.00	0.00	-5,78,411.55	5,78,411.55	5,78,411.55	
	EXTERNAL PLASTERING	1,390.00	SQM	618.33	0.00	100.00	0.00	0.00	8,59,478.70	8,59,478.70	0.00	0.00	-8,59,478.70	8,59,478.70	8,59,478.70	
PL	CONCRETE PCC M15- MK	168.00	CuM	3,484.30	0.00	100.00	0.00	2,35,387.56	5,85,362.40	5,85,362.40	0.00	-2,35,387.56	-5,85,362.40	8,20,749.96	5,85,362.40	
PL	CONCRETE- M40-MK	163.00	CuM	21,941.15	0.00	100.00	0.00	15,648.71	35,76,407.45	35,76,407.45	0.00	-15,648.71	-35,76,407.45	35,92,056.16	35,76,407.45	
STILT	CONCRETE- M40-MK	137.00	CuM	15,082.26	0.00	100.00	0.00	6,12,881.45	20,66,269.62	20,66,269.62	0.00	-6,12,881.45	-20,66,269.62	26,79,151.07	20,66,269.62	
	TRANSPORTATION CHARGES AGAINST R...	500.00	Brass	945.00	0.00	100.00	0.00	1,03,000.00	4,72,500.00	4,72,500.00	0.00	-1,03,000.00	-4,72,500.00	5,75,500.00	4,72,500.00	
								<b>3,435.00</b>	<b>15,23,723.32</b>	<b>1,27,10,444.00</b>	<b>1,27,10,444.00</b>	<b>0.00</b>	<b>-15,23,723.32</b>	<b>-1,27,10,444.00</b>	<b>1,42,34,167.32</b>	<b>1,27,10,444.00</b>

Fig. 9. Project Budget Summary

**3) Resource Management:** The Table II. shows that how much rating are given by the professional leaders, for material management, material availability, labour availability, inventory management, financial support, methods and technologies, fluctuations in prices, delivery of materials and material specification.

As shown in Table II. there are three categories in the rating scale which are, in between 1-3 referred as Poor management, 4-7 referred as medium level management and 8-10 referred as Good level management. In most of the construction projects, their professionals believes that they are still in the medium level of resource management. Now we will discuss for those replies which are in the range of 4-7. Out of 124 replies for material management 118 replies goes with the medium level of management. For material availability 99 replies goes with they faced material related problems and they rated for medium. 84 replies rated as medium level of management for Human resource management (HRM). For Inventory management 98 replies comes for medium level of management. 100 replies for Financial support from Client side. 86 replies comes for Fluctuation in prices. 103 replies comes for Delivery of the materials. 99 replies comes for Material specification.

**TABLE II. Resource Management Problems**

Category	Total Response	Rating scale									
		1	2	3	4	5	6	7	8	9	10
Material management	124	00	00	00	00	04	76	38	05	01	00
Material availability	124	00	00	01	01	05	93	04	20	00	00
Labour availability	124	00	00	01	01	03	80	18	20	01	00
Inventory management	124	00	00	00	01	04	93	23	01	02	00
Financial support	107	00	00	01	01	24	75	02	01	02	01
Methods and technologies	124	00	00	00	01	06	76	19	20	02	00
Fluctuations in prices	124	00	00	00	01	05	80	16	19	01	02
Delivery of materials	124	00	00	00	00	07	96	01	20	00	00
Material specification	124	00	00	00	02	03	94	05	19	01	00

By using ERP system, we can reduce the challenges easily. Because you are tracking Daily Resource Requirement lists as shown in Fig. 10, Monthly Breakup of the Resources as shown in Fig. 11 and Labour Detail Report as shown in Fig. 12 and Fig. 13. Stock Report

Most of the organizations are moving into the ERP, because you can design ERP system as per the use and requirements.

**Fig. 10. Resource Requirement Report**

**Fig. 11. Monthly Breakup Report**

Sr	Contractor Name	Date	Supervisor	Forman	Carpenter	Carpenter Helper	Fitter	Fitter Helper	Mason	Mason Helper	Male Coolie	Female Coolie	Plumber	Painter	Tile Man	Electrician	Welder	Other
1	DEPARTMENTAL	05/10/2022	10.00	9.00	5.00	10.00	3.00	6.00	7.00	21.00	24.00	2.00	2.00	3.00	1.00	2.00	1.00	150.00
			10.00	9.00	6.00	10.00	3.00	6.00	7.00	21.00	24.00	2.00	2.00	3.00	1.00	2.00	1.00	150.00

**Fig. 12. Labour Report**

The screenshot shows a web-based form for generating a Stock Report. It includes several dropdown menus and text input fields. The fields are: Name of Company\*, Project Name\*, Godown Name\*, Item Group\*, Item Description\*, Voucher No\*, Start Date\* (DD/MM/YYYY), and End Date\* (DD/MM/YYYY). Below the form are three buttons: Stock Report, Group Wise Report, and Stock Ageing.

**Fig. 13. Stock Report**

**D) Sales Management:** There are two major challenges facing today's Companies. First one is the customer conversation which is difficult to maintain in the middle of the sales process. And Second one is To successfully integrate presales into an existing relationship. For that, we need to minimize risk of discontinuity.

Also, Most of the companies are facing challenges to maintain record of previous conversation because of uncoordinated Team Members and at the stage of Presales, Customer Organization, their previous dialog and People are important for the background briefing which means, sales and presales teams must work together with the transparency and that can be possible only by using ERP System.

We can easily maintain Enquiry Details, Project Details, Installment Details, Additional Charges Details (If Applicable), Sales Person Information, Enquiry Sources, Channel Partner Details, Status of the Unit, Graphical Presales and Post Sales, Car Parking Layout and Allotment, Customer Details, Receipts, Post Sales Activities, Payment of Brokerage (If Applicable), Possession Details, Ledger Adjustment, and Annexure Due Generator by using ERP System. Additionally, you may modify all the aforementioned forms using the ERP system to fit your workflow and procedures.

With the use of ERP, we can quickly produce all the necessary reports, including the Booking Report (Date-wise), Member Finance Info, Slab-wise Due, Receipt Report, Canceled Members, Member Ledger, Summary Report (Finance and Unit Summary), Brokerage Report, and Sales Due Ageing. Additionally, we may modify reports in the ERP system to meet our needs.

### III. PROCESS OF ERP SOFTWARE IMPLEMENTATION:

As shown in the Fig 14. ERP Implementation process includes, Planning and Finding of ERP, Design as per Organizational Requirements, Development of the ERP Software, Fixing of Problems, Configuration and / or Deployment and Support after GO-Live

**Planning and Finding of ERP:** Gather your ERP team first, then assign them the task of locating the best ERP software. They will be in charge of ensuring that the flawless implementation of ERP in all departments..

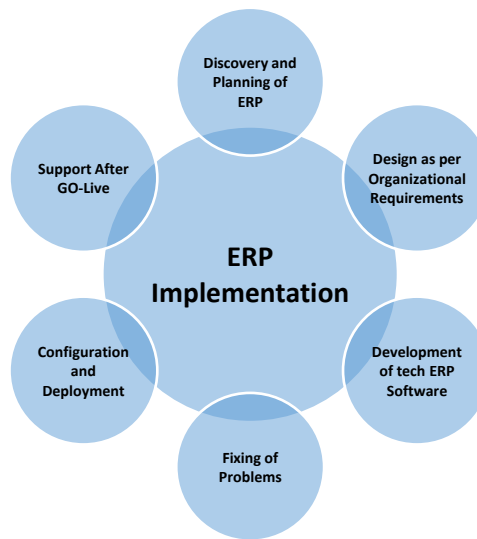
**Design as per Organizational Requirements:** Every firm has a unique way of generating revenue. Therefore, first understand ERP software and examine the current workflows. As well as detailing the software customization and data import procedures into the ERP system.

**Development of the ERP Software:** Adjust it to the needs of the organization. Plan your training materials and make a list of all the outdated information you need to import into the system. Also, remember to bring your maker team along when making changes of any kind. Because they are creators, they are aware of what they desire and what is undesirable.

**Fixing of Problems:** The most crucial step will come once the ERP System has been customized, testing start from the beginning the first time. Create a simple project that has already been finished, and test it from the first to the final activity. You will encounter issues during testing that the ERP Support staff can resolve, giving the Maker more assurance.

**Configuration and / or Deployment:** We are prepared to go live once the configuration is finished and the old data has been imported into the ERP system.

**Support after GO-Live:** Make sure that both the project team and the management team are providing support for the users. because they aid organizations in updating their ERP systems and fixing issues.



**Fig. 14. ERP Implementation Cycle**

#### **IV. CONCLUSION**

The future of ERP systems is an exciting one, full with fresh opportunities and breakthroughs that will revolutionize how businesses run. Allow me to take you on a journey as we investigate what this future might include.

ERP systems are even more common and effective than they are right now as we enter the year 2030. The development of AI (Artificial Intelligence) and ML (Machine Learning) has made it possible for ERP systems to provide unmatched levels of automation and insight into business operations.

Imagine a future in which ERP systems can analyze enormous volumes of data in real-time from numerous sources and using AI and ML to forecast trends, spot opportunities, and automate repetitive operations. Employees may communicate with ERP systems using natural language using chat-bots and virtual assistants, making it simpler than ever to get information and finish tasks.

The emergence of ERP systems built on block-chain technology is one of the most important developments in this field. Businesses may build a safe, decentralized, and unchangeable system for storing and distributing data by utilizing block-chain technology. This makes it possible for enterprises to work together more successfully, share data in a safe manner, and automate procedures in a transparent and reliable way.

ERP systems will be used by organizations to develop a more comprehensive view of their operations as they develop and become more potent. ERP systems will become increasingly more effective tools for controlling and optimizing business operations as they integrate with new technologies like big data analytic, cloud computing, and edge computing.

Every organization is works for the benefit but, from where that profit comes from? The reason behind getting less profit is Six-Star Constraints in your construction project. The perfect solution for this study is, Minimize the constraints from your project by using ERP System and maximize the profit for your organization.

#### **ACKNOWLEDGEMENT**

I owe a considerable amount to my parents who urged me to travel anyplace in India as well as Abroad and encouraged me all through my investigations. I might want to commit this study to them as a sign of their hugeness in this investigation just as in my life.

Special thanks to Mr. Nitin Dhonde, Project Head, ITAakash Strategic Software Pvt Ltd, Mumbai for his help during all the session.

I am very thankful of ITAakash Strategic Software Pvt Ltd, Mumbai, India for their support during entire research.

Uncommon a debt of gratitude is in order for all the Construction Management experts for their cooperation in filling the Questionnaire survey.



#### REFERENCES

- [1] ITAakash Strategic Software Pvt Ltd, Mumbai, India, 'https://strategicerp.com.'
- [2] Ahmed, S. a. K. R., 1995. Analysis of Client-Satisfaction Factors in Construction Industry. Journal of Management in Engineering, Volume 11.
- [3] Alhomidan, A., 2013. Factors affecting cost overrun in construction projects. Factors affecting cost overrun in construction projects, 13(3), p. 9.
- [4] Herroelen, W. R. B. & D. E., 1998. Resource-constrained project scheduling, s.l.: Computers and Operations Research.
- [5] PMBOK, 2013. A Guide to the Project Management Body of Knowledge. 5th ed. Newtown Square, Pennsylvania: Project Management Institute.