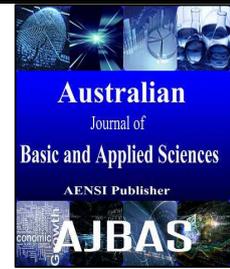




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Erp system implementation in india: case of tata steel ltd.

¹Suraj Kumar Mukti and ²Dr. A.M. Rawani

¹Assistant Professor, Department of Mechanical Engineering, National Institute of Technology Raipur, India.

²Professor, Department of Mechanical Engineering, National Institute of Technology Raipur, India.

Address For Correspondence:

Suraj Kumar Mukti, Assistant Professor, Department of Mechanical Engineering, National Institute of Technology Raipur, India
E-mail: surajmukti@yahoo.com, Phone: +91 9302837666

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ABSTRACT

Enterprises nowadays strive to keep transforming their business processes in accordance with the fast-changing customer demands so as to survive the intense global competition [1]. In current times, the ERP scenario in India is witnessing a swift growth. In order to survive in highly competitive business environments, companies have to continuously change their business [2]. This paper presents case study of Tata Steel Limited, formerly known as Tata Iron and Steel Company Limited (TISCO) Jamshedpur. The aim of this case study was to learn about Enterprise Resource Planning (ERP) system implementation success and related issues at Tata Steel Ltd. Tata Steel Ltd. is an Indian multinational steel-making company headquartered in Mumbai and a subsidiary of the Tata Group. It was the 11th largest steel producing company in the world in 2014, with an annual crude steel capacity of 26.202 million tonnes and the second largest private-sector steel company in India after SAIL [4]. Case study is developed by observation and interview technique. The case is then analyzed applying flexible system methodology i.e. Situation-Actor-Process (SAP). This research article examines vital dimensions of ERP system implementation and related issues and gives an in-depth comprehension in system implementation process at Tata Steel Ltd. Understanding of different issues will help organisations to emphasize on certain features to ensure the success of implementation of ERP system.

INTRODUCTION

Enterprise Resource Planning (ERP) is a cross-functional enterprise system directed by a modulated group of software modules that sustain the basic internal business processes of any given organisation (Kumar, K., and van J. Hillegersberg, 2000). Kumar and Hillegersberg (2000) defined enterprise resource planning (ERP) systems as “configurable information systems packages that integrate information and information based processes within and across functional areas in an organization” (Maxie Burns, O., *et al.*, 1991). In information systems (IS) area, implementation is defined as “the process that begins with the managerial decision to install a computer based organizational information system and is complete when the system is operating as an integral part of the organization’s information system” (Zhang, Z., *et al.*, 2005). ERP systems are expensive and time consuming. A recent Standish Group report on ERP implementation projects discloses that these projects were on average, 178% over budget, took 2.5 times as long as intended and delivered only 30% of promised benefit (Chien, S.W. and S.M. Tsaur, 2007). Chien and Tsaur (2007) states that the measurement of ERP systems effectiveness or success is significant to understand the value of ERP system investments (Sapsford, R. and V. Jupp, (Eds.). 2006). They reported that 57% of companies launched no assessments on the performance of ERP systems owing to lack of effective evaluation models. This covers the way for the adoption of ERP systems within the organisation (Sapsford, R. and V. Jupp, (Eds.). 2006). ERP is the most rapidly growing system area in operations today. Thousands of companies have implemented or are in the process of implementing an ERP

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system (Chien, S.W. and S.M. Tsaur, 2007). This study deals with various issues related to ERP system implementation at Tata Steel Ltd.

II. Aim and Methodology of the Paper:

The aim of the paper is to illustrate the need of ERP system, to identify the selection method of ERP system vendor, identification of problem during ERP system implementation, to be aware of ERP system implementation approach, to know implementation experiences, to identify factors affecting ERP implementation and success indicators, to know the scenario after ERP implementation and future plans related to ERP system at Tata Steel Ltd. Case study is prepared by collecting data both from primary and secondary sources (Bhagwat, R. and M.K. Sharma, 2006). Structured interview of executives of various departments which are directly or indirectly influenced with ERP system of the rank of Assistant Managers and above are arranged (Nodoushani, O. and P.A. Nodoushani, 2012). Personal visit of Tata Steel Ltd. Jamshedpur was made to collect primary data. The focus of interview was to explore various ERP system success factors and indicators at Tata Steel Ltd. Jamshedpur. To supplement the findings, data are collected from annual reports, press release, printed documents and websites related to Tata Steel Ltd. Questionnaire survey on ERP system implementation has also been used to supplement the findings. Finally the case is analysed applying Situation-Actor-Process, (SAP) methodology to find the finer issues. Prevalent situation in the context of ERP system implementation at Tata Steel Ltd. has been identified.

III. Tata Steel Ltd. formerly known as Tata Iron and Steel Company Limited (TISCO):

3.1. Background of the Plant:

Tata Group is an Indian multinational company headquartered in Mumbai India. It encompasses seven business sectors: engineering, communications and information technology, materials, services, energy, consumer products and chemicals. Tata Group was founded in 1868 by Jamsetji's Tata as a trading company. It has operations in more than 80 countries across six continents (Goldstein, A., 2008). Tata Group has over 100 operating companies with each of them operating independently. The major Tata companies are Tata Steel, Tata Motors, Tata Consultancy Services (TCS), Tata Power, Tata Chemicals, Tata Teleservices, Titan Industries, Tata Communications and Taj Hotels. The combined market capitalization of all the 32 listed Tata companies was INR 8.2 Trillion (\$ 138 billion) as of July 2014 (Holtbrügge, D., *et al.*, 2013). Tata receives more than 58% of its revenue from outside India. Tata Group remains a family-owned business as the descendants of the founder (from the Tata family) own a majority stake in the company. The current chairman of the Tata group is Cyrus Pallonji Mistry who took over from Ratan Tata in 2012. The Tata Group and its companies & enterprises is perceived to be India's best-known global brand within and outside the country as per an ASSOCHAM survey (Brockbank, W., 2013). The 2009 annual survey by the Reputation Institute ranked Tata Group as the 11th most reputable company in the world (Athreya, S. and S. Kapur, 2009). The Tata Group has established and helped financially numerous quality researches, educational and cultural institutes in India. Tata Steel has manufacturing operations in 26 countries including Australia, China, India, Netherlands, Singapore, Thailand and United Kingdom with employees around 80,500 people. Its largest plant is located in Jamshedpur, Jharkhand with 9.7 million tonnes capacity (Goldstein, A., 2008). In 2007 Tata Steel acquired the UK-based steel maker Corus which was the largest international acquisition by an Indian company till that date. It was ranked 471st in the 2013 Fortune Global 500 ranking of the world's biggest corporations (Jha, V.S. and S. Arora, 2013). It was the seventh most valuable Indian brand of 2013 as per Brand Finance (Datta, S., 1985). On February 12, 2012 Tata Steel completed 100 years of steel making in India. Tata Iron and Steel Company Ltd. [i.e. TISCO] is Asia's first and India's largest integrated private sector steel company (Reddy, B.M.). Tata Iron and Steel Company were established by Dorabji Tata on August 25, 1907, as part of his father Jamsetji's Tata Group. By 1939 it operated the largest steel plant in the British Empire. The company launched a major modernization and expansion program in 1951. Later in 1958, the program was upgraded to 2 Million metric tonnes per annum (MTPA) project (Srivastava, A.K., *et al.*, 2012). By 1970, the company employed around 40,000 people at Jamshedpur, with a further 20,000 in the neighbouring coal mines. In 1990, it started expansion plan and established its subsidiary in New York. The company changed its name from TISCO to Tata Steel in 2005 (Markus, M. L., and C. Tanis, 2000).

3.2. Need of ERP system at Tata Steel Ltd:

Tata Steel Ltd. faced two major problems from their legacy system; firstly they were not customer friendly, The whole system was tuned to the process and very little attention was paid to the customer demands; secondly the systems were outdated and the method of operation was too complex and not error free. In order to rectify these issues the organization was searching a full proof system which could serve as a master system. The ERP system was appropriate for the organisation. This was investigated by the concerned departments.

3.3. Selection of ERP system vendor:

The management at Tata Steel wanted a full proof system to seamlessly integrate with its existing information system and further provide compatibility with its future implementations. After an in-depth study of functionality, cost, time, compatibility, esteem, operability, support and future organizational requirements was done. ERP system selection starts with an understanding of Critical Success Factors (CSFs) for a successful implementation in an organization. ERP system vendor selection methodology steps at Tata Steel Ltd. has mentioned below:

3.3.1. Structured approach:

As a first step in selection of a new system, structured approach was adopted. In this approach the sets of practices were presented to all the stakeholders within the enterprise before the system selection process begins. Everyone needed to understand the method of gathering requirements; invitation to tender; how potential vendors will be selected; the format of demonstrations and the process for selecting the vendor. Thus, each stakeholder was aware that the decision will be made on an objective and collective basis and this will always lead to a high level of co-operation within the process.

3.3.2. Focused demonstrations:

Demonstrations by potential vendors must be relevant to the processes of Tata Steel Ltd. However, it was important to understand that there was considerable amount of preparation required by vendors to perform demonstrations that are specific to a business. Therefore it was essential that vendors were treated equally in requests for demonstrations and it was incumbent on the company to identify sufficient demonstrations so that proper decision could be made.

3.3.3. Objective decision process:

Choosing which ERP system to use was a complex decision that has significant economic consequences, thus it requires a multi-criterion approach. There were some key points to note when the major decision makers were agreeing on selection criteria that will be used in evaluating potential vendors. The criteria were wide-ranging and decided upon by as many objective people as possible within and external to Tata Steel Ltd.

3.3.4. Full involvement by all personnel:

The decision on the system was made by all stakeholders within Tata Steel Ltd. It required top management leadership and participation. It involved virtually every department within the company. Representatives of all users were:

- Involved in the project initiation phase where the decision making process was agreed;
- Assisted in the gathering of requirements;
- Attended the Vendor Demonstrations;
- Had a significant participation in the short-listing and final selection of a vendor.

The implementation of SAP system was associated with certain strategic goals in mind. With this implementation, Tata Steel Ltd. wanted to bring forth a culture of continuous learning and change. This would enable Tata Steel Ltd. to achieve a world-class status for its products and services and strengthen its leadership position in the industry. Besides this, Tata Steel Ltd. also wanted a system to result in quick decision-making, transparency and credibility of data and improve responsiveness to customers across all areas.

3.4. Problem during ERP system implementation:

In order to successfully implement ERP system, there were several problems during implementation at Tata Steel Ltd. as mentioned below:

➤ To select the correct consultants to have the correct blueprint during Implementation:

Selection of appropriate ERP system consultants and experts who defines and decides the correct blueprint for successful implementation was a first and big problem during implementation. In 1998-99 a small cross-functional in-house team along with consultants from Arthur D. Little (Strategy Consultants) and IBM Global Services (BPR Consultants) re-designed the two-core business processes, Order Generation & Fulfillment and the Marketing Development processes to improve customer focus facilitating better credit control and reduction of stocks. In keeping with this commitment it adopted the latest production and business practices to offer innovative processes that meet the changing demands of its global and local customers.

➤ ERP system implementation was not a simple IT project:

In fact it was an organizational project impacting all levels of an organization. So it was very important to get the support from all the people that were involved in implementing ERP system, but more important was the participation and commitment of all levels, especially managers of the company.

➤ ***The Blueprint was the keystone:***

used as the lighthouse who guided the whole project. A blueprint should never be a merely mapping of ERP systems. In fact a blueprint brought the strategy of a company into execution through defining its processes across all business areas. Tata Steel changed their blueprint many times as per process, events and products. This was a tedious process during ERP system implementation.

➤ ***Testing of ERP system hardware and software was rigorous and tedious job:***

Testing of business processes with each other, integration of ERP system and hardware, readiness of end-users before going live, was a great problem during ERP system implementation.

➤ ***To Design and execute a Change Management Program was a big problem:***

Communication of information to end users who have to accept the new technology, designing and executing a training plan in order to provide proper knowledge, was a problem during implementation within the organization.

3.5. ERP system implementation approach at Tata Steel Ltd:

Big bang adoption:

is the adoption type of the instant changeover, when everybody associated with the new system moves to the fully functioning new system on a given date. When a new system needs to be implemented in an organization, there are three different ways to adopt this new system: The big bang adoption, phased adoption and parallel adoption. With the big bang adoption, the switch between using the old system and using the new system happens at one single date, the so-called instant changeover of the system. Everybody starts to use the new system at the same date and the old system will not be used anymore from that moment on. Tata Steel planned a big-bang approach of going live with all the modules at the same time, in just a span of eight months. Driven against the speed of time, the pace of implementation was fast with all activities backed by a lot of thought process and meticulous planning. On 1st November 1999, Tata Steel pulled off a big bang implementation of all SAP modules at one go across 46 countrywide locations as per the set deadline.

3.6. Implementation experiences:

The implementation of ERP system SAP was associated with certain strategic goals in mind. With this implementation, Tata Steel Ltd. wanted to bring forth a culture of continuous learning and change. This would enable Tata Steel Ltd. to achieve a world-class status for its products and services and strengthen its leadership position in the industry. Besides this, Tata Steel Ltd. also wanted a system to result in quick decision-making, transparency and credibility of data and improve responsiveness to customers across all areas. SAP has been implemented in sales, production, finance and accounting, planning system, warehouse management, human resource planning department.

The path was set to achieve success through SAP. All the branches, which had huge numbers of transactions and complexity, were identified as a 'hub' while the smaller branches along with the consignment agents were defined as 'spokes' which were attached to these branches. In January 1999 the team from Tata Steel Ltd. was decided and christened '**TEAM ASSET**' an acronym for Achieve Success through SAP Enabled Transformation. The TEAM ASSET had two simple axioms:

- Go-Live date - 1st November 1999
- There are only 24 hours a day

Preparatory task forces activities were conducted and core business processes were mapped to SAP modules. Also another parallel activity called 'Change Management' was initiated within the company. The prime objective of 'Change Management' was to reach out to people involved indirectly in the project to apprise them of the developments taking place.

"We wanted that Tata Steel be the number one in the steel industry...we wanted to be the first to have the latest systems..." said Mr. Sandipan Chakravorty, GM (Sales), Tata Steel Ltd.

The company knew well that they had a tough time especially to implement the system in one stroke. They had to choose top ERP system in order to ensure that it meets the demands of a big firm like Tata Steel Ltd. They went ahead with associating and implanting Tata Steel Ltd. to all the stakeholders so that they become compatible. These ideas also contributed to the success. They were also sharp enough in adopting the modern and most recent technology available in the market. The period set for implementation seemed to be another major challenge. The time granted for the process was 8 months.

The business process was divided into two main segments. The core functions were denoted to be major ones. Similarly the supporting functions were named minor ones. A plan of action on the proposed ERP's impact was drafted depicting their relation to one another and to the business process. All of them were made to bear in mind the fact that ERP system implementation was imperative and that the deadlines were not very comfortable. The company took all efforts to ensure that the change did not produce any sort of resentment in the

organization. This was done by educating everyone on the need and desirability of change. Eventually Tata Steel Ltd. implemented ERP system SAP within eight months.

The company adopted ERP system to take a lead in the competitive steel industry and through constant learning, innovation and refinement of its business operations. Tata steel ltd. has transited seamlessly from a production-driven company to a customer-driven one using ERP system SAP.

3.7. Factors affecting ERP implementation:

“The mission of top management is to create a favourable environment for the implementation of ERP systems and attaining of desired results.” Mr. R.K. Shrivastava, HoD Civil, Tata Steel Ltd. Management of Tata Steel Ltd. was fully committed and participated actively with dignified project schedule in which the scope, size and complexity of the project was clearly mentioned. A competent project team with clear goals and objectives was deputed to accomplish the target. During ERP system implementation, proper documentation were done, all the processes were well aligned with the business processes and the organisation has followed proper Business Process Re-engineering as required for ERP Implementation.

The organization has sufficient hardware and software with a suitable ERP system which can support the business processes in healthy way, has hired for successful ERP implementation at Tata Steel Ltd. Importing data from other system to ERP system, data analysis and data maintenance with this system is easy. All the users have taken into confidence in decision making process for ERP implementation, proper training to run ERP system were provided in Tata Steel Ltd. ERP system vendor /consultant at Tata Steel Ltd. have healthy relationships with the organization which can provide adequate technical support, quality training and services on time. Tata Steel Ltd. has qualified and well informed ERP vendor with adequate experience.

3.8. Success indicators at Tata Steel Ltd. with ERP system:

Mr. R.K. Shrivastava, HoD Civil, Tata Steel Ltd. elaborates “ERP System SAP at Tata Steel Ltd. has accurate and relevant data, easy to learn and easy to use, reliable, meets users’ requirements, provides output what users need. ERP System database contents is up-to-date it provides up-to-date information which is understandable, important, usable and relevant to users.” He again speeches “ERP System employees are able to give prompt service to users, they have the knowledge to do their jobs well, they intend to use ERP System to review decisions made by other members of the department. Overall, employees are very satisfied with the ERP System.” The introduction of ERP System SAP within Tata Steel has led to efficient business processes, enhanced customer service, reduced costs, improved productivity, accelerated transaction time, workflow management and reduction in the number of credit management errors. There have also been significant savings in manpower, inventory levels, and resource management. Tata steel ltd. can now update its customers daily and provide seamless services across the country, improving customer management. The availability of online information has facilitated quicker and reliable trend analysis for efficient decision-making. Besides, the streamlined business process reduces the levels of legacy system and also provides consistent business practices across locations and excellent audit trail of all transactions. Tata Steel Ltd. had reduced ERP implementation costs due to a common template, reduced application maintenance costs, lower integration cost due to standard interfaces, and Lower infrastructure costs. SAP ERP solutions produced a remarkable result to the company in terms of financial technical and managerial parameters. With SAP's solution Tata Steel can now update their customers on a daily basis and also used for efficient decision-making.

"Now I shudder to think how we were functioning so many years without a world-renowned ERP system. Along with the hard times we had, came the rewards of the success of implementation," remarked Mr. K. V. Srinivasan, Member, and Team ASSET at Tata Steel Ltd.

IV. Sap analysis:

The case is analysed applying Situation-Actor-Process, (SAP) methodology to find the finer issues. Prevalent situation in the context of ERP system success measurement at Tata Steel Ltd. has been identified.

4.1 Situation:

- Tata Steel Ltd. Jamshedpur, Jharkhand established in 1907 is Asia's first and India's largest integrated private sector steel company running with 9.7 million tonnes capacity.
- Tata Iron and Steel Company Ltd. was the seventh most valuable Indian brand of 2013 as per Brand Finance. On February 12th, 2012 Tata Steel completed 100 years of steel making in India.
- Tata Iron and Steel Company Ltd. is executing ERP system SAP from November 1st 1999
- Tata Iron and Steel Company Ltd. have followed Big bang adoption theory to implement ERP system.
- On November 1st 1999 Tata Steel pulled off a big bang implementation of all SAP modules at one go across 46 countrywide locations as per the set deadline.

- In January 1999 the team from Tata Iron and Steel Company Ltd. was decided and christened 'TEAM ASSET' an acronym for Achieve Success through SAP Enabled Transformation and implementation was within eight months.
- Tata Iron and Steel Company Ltd. have invested Rs 40 crore for ERP implementation and had saved around Rs 33 crore within a few months.
- The introduction of SAP also decreased manpower cost from more than US \$ 200 per ton in 1998 to about US \$ 140 per ton in 2000.
- There was a significant reduction in inventory the carrying cost, from Rs 190 per ton in 1999 to Rs 155 per ton by 2000.
- The company is planning to adopt my SAP Customer Relationship Management solution to enhance its customer relationships in the near term and eventually realize its dream of a becoming the most efficient and competitive company in the world.

4.2 Actor:

- Management of Tata Iron and Steel Company Ltd. as an implementing force.
- Various departments implementing ERP system SAP.
- Interdepartmental co-operation and communication.
- Major Privet sectors steel making companies as competitors.
- Stakeholders, Vendors, Consultants and Customers of Tata Iron and Steel Ltd.
- Government of India and state government as a customer.

4.3 Process:

- Tata Steel has embarked on a mission to conquer the steel market through its dedicated distribution network and innovative product solutions using ERP system SAP.
- The head and staff of ERP system section are authorised and responsible for successful implementation and maintenance of ERP system within the organization.
- The organization conducts training and education programmes to ensure successful ERP implementation in the organization.

Conclusion:

With the implementation of ERP system SAP, management and coordination among all departments has become more simple and convenient at Tata Steel Ltd. Jamshedpur. Now all the data of the everyday production is collected automatically. The process is now faster and error free. Integration with the other departments has now become simpler. After the implementation of ERP, the results have improved drastically. Close to Rs 40 crore has been spent on its implementation and had saved around Rs 33 crore within a few months. The manpower cost had also reduced tremendously. After SAP solutions were introduced in Tata Steel Ltd., the business processes became more efficient. It also improved customer service and productivity and reduced costs. The introduction of SAP also decreased manpower cost from more than US \$ 200 per ton in 1998 to about US \$ 140 per ton in 2000. There was a significant reduction in inventory the carrying cost from Rs 190 per ton in 1999 to Rs 155 per ton by 2000. There were also significant cost savings through efficient management of resources. The overdue outstanding had been brought down. With the implementation of SAP, there has been efficient management of resources and hence a lot of cost savings has been done. With ERP system, Tata Steel can now update their customers regularly and provide better services thus improving the customer relationship and has better customer management across the country. It has helped in efficient and faster decision making as all the information is now available online. Besides streamlining the business process, it provides consistent business practices across locations. Analysts felt that Tata Steel Ltd.'s modernization program was very successful. In spite of the depressed market and lower margins, the decrease in the production costs enabled Tata Steel Ltd. to achieve a profit after tax of Rs 5.53 billion in 2000-2001, and Rs 4.22 billion in 1999-2000 compared to Rs 2.82 billion during 1998-99. The success of this project was motivating for both the Tata Steel Ltd. and the ERP vendors. Now Tata Steel Ltd. is not only using this software but they are also going to work on it further to gain more benefits for the company as well as for the stakeholders. This will help company to make more profits and satisfy the customer needs efficiently. In this way the company can keep its existing hold in the steel industry. At last the SAP model presents the situation of Tata Steel Ltd which helps in identifying issues in the current method of operation.

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