



## An Erp Post-Implementation Analysis of Garment Industries, Tirupur (Medium Size): end Users Perspective

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**ABSTRACT**

Nowadays, many companies are using Enterprise Resource Planning (ERP) as one of the comprehensive integrated systems. Even though the use of ERP systems is growing and becoming more popular, these systems are still somewhat unfamiliar in the garments industry. Many garment industries still hesitate to adopt these systems due to their high cost and risk. Without a doubt, a successful ERP implementation is an essential for the benefits from such systems, so this issue is always considered top priority in the ERP related research area. The analysis is based on ERP post implementation phases and key factors. It helps to find out which factors we should give high priority in terms of ERP post implementation. For this research, the required data were collected from ERP end users of Garment industries SMEs in Tirupur. The data collection was mainly based on the surveys and interviews, and the results of the data analysis were used to improve ERP implementation.

### KEYWORDS

ERP, Post Implementation of ERP, ERP end user perspective

### INTRODUCTION

The business and requirements are extended over the border. So the organization should follow different currencies, language, tax policies according to the country they operate the business. In this scenario, firms are investing heavily in Information Technology (IT) systems to effectively integrate and coordinate these activities across country as well as shape the way they conduct business. In particular, more and more firms around the world are implementing packaged software called Enterprise Resource Planning (ERP) systems whether they belong small and medium or large size of operations.

### Definitions of ERP

**Klaus et al. (2000)** describe ERP systems as comprehensive, packaged software solutions [that] seek to integrate the complete range of a business's processes and functions in order to present a holistic view of the business from a single information and IT architecture.

**O'Leary (2000)** describes ERP systems as computer-based systems designed to process an organization's transactions and facilitate integrated and real-time planning, production, and customer response.

### REVIEW OF LITERATURE

According to **Arpita (2007)** key factors are Enterprise related -Top management support, End users related -Education & Training, HR related – End users attitude oriented, Quality related - Project team, Strategy related -ERP package, Project related - IT infrastructures, Process related-Change management, Performance related -Organizational culture, Technology related - Testing & Crisis management and Vendor related - Stakeholder relationship

**Koch (2002)** summarizes the main benefits and reasons companies adopt ERP are: Integrating financial information, integrating customer order information, Standardizing and speeding up manufacturing processes, Reducing inventory and standardizing HR information.

**Nah and Lau (2001)** analyzed ten selective articles from (1998-2000) found nine ERP success factors (SFs) listed below: (1) ERP teamwork and composition (2) Top management support (3) Business plan and vision (4) Effective communication (5) Project management (6) Appropriate business and legacy

systems (7) Software development , testing and troubleshooting (8) Effective decision – making (9) Effective training.

**Dataquest (1998)** analyzed the implementation of an ERP system in a textile firm. According to him, he pointed out that the key factors for a successful deployment include project management, customization to suit industry and firm specific needs, continuous training programs, communication, change management programs, top management support, project steering committee, and external consultants.

List of performance outcomes benefiting from ERP (**Loh and Koh**) are ERP Performance Outcomes are: Quickened information response time, Increased interaction across the enterprise, Improved order management/order cycle, Decreased financial close cycle, Improved interaction with customers , Improved on-time delivery, Improved interaction with suppliers, Lowered inventory levels

According to **BooYoung Chung**, Success factors are grouped into, User related variables are output, System reliability, Compatibility, Image , Job Relevance , Result Demonstrability and Project related variables are Internal support, Consultant support and Function. ERP Benefits achieved by support of Users impacts and Organizational impacts. Success can be measured by Progress and Quality.

**Shanks et al (2000)** synthesized ERP project lifecycle as a major ERP implementation process model. It deals with Planning, Implementation, Stabilization and Improvement

**(Ifinedo, 2006)** proposed an extended ERP system success measurement model 1. System quality 2.information quality 3.individual impact 4. Work group impact 5. Organizational impact

### RESEARCH METHODOLOGY

Previous researchers have been done on identifying and analyzing success or failure factors in implementing ERP. But those researches failed to link the factors with implementation phases in end users perspective in India. The research will identify and select some of the key factors (CSFs) in each of these post implementation areas based on previous study. The purpose of this research is to identify ERP outcomes and provides the result for the following questions

- What are the key factors that impact ERP system post implementations?
- Which factors influencing the ERP implementation at most?

**OBJECTIVES OF THE STUDY**

- ✓ To analyze the key factors that contributed for the success of ERP post - implementation opined by ERP end users. (End users, Organization, Project management and External factors)
- ✓ To rank the key success factors in ERP implementation

**POPULATION & SAMPLING**

Universe or population is TEA members garment (SMEs) working ERP end users of 12 ERP implemented companies is the whole mass under study. Data were collected using questionnaires based on survey. The top twelve ERP implemented garment firms member with TEA, Tirupur were included. This provided a sample of 471 ERP end users (completely filled). Questionnaires based survey method was used.

**DATA ANALYSIS**

**Post – Implementation**

A set of 11 factors was prepared after reviewing literature for the investigation. The factors were:

Post Implementation – Project outcomes: 1. System quality: a. Security issues b. Data analysis & Transparency. 2. Organizational impact: a. ERP benefits b. Cost reduction by using ERP (related to respective departments) 3. Information Quality : a. Data management b. Decision Making 4. Individual impact: a. Work Efficiency 5. Workgroup impact: a. Communication b. Integration

Post – Implementation - Business Outcomes: 1. Enterprise related: a. Business process improvements b. Competitive strategy 2. Vendor related 3. Customer related 4. Business partners 5. External reports (Government tax purpose) 6. Internal reports. Different variables were grouped under the above mentioned factors for the study.

**Table – 1 Descriptive Analysis of Post – Implementation**

Item	Mean	Std. Deviation
ERP reduces the risk and security issues	3.5234	1.09588
ERP increases data transparency in procurements	3.2213	1.17634
ERP helps to tracking history data quickly	3.8383	.98356
ERP reduces manufacturing cycle time	3.2915	1.27554
ERP reduces delay in supply chain	3.2617	1.26694
Our ERP reduces organizational costs	3.7426	1.05484
ERP helps to maintain data accurately	3.8511	.91839
ERP enhances quality of decision making	3.4617	1.09740
ERP increases work efficiency	3.6702	1.06293
ERP reduces work load	3.3191	1.07712
ERP improves communication within the organization	3.6362	1.09543
ERP enhances inter-departmental coordination	3.6085	1.14416
ERP helps to share work flows across functional boundaries	3.6979	1.19799
ERP enhanced support to organizational activities	3.3681	1.35518
ERP is integrated in the whole business process	3.7851	1.20349
ERP made it easier to take advantage of new technology	3.5149	1.30228
ERP provides us with competitive advantage	3.4191	1.34658
ERP helped to meet the challenging business environment	3.7340	1.20744
ERP helped to improve the relationship with suppliers	3.7234	1.16271
ERP facilitated faster response to customer complaints	3.3128	1.34388

ERP helped to improve the customer satisfaction	3.6234	1.18118
ERP enhanced the stakeholders confidence	3.4830	1.23503
ERP helped to submit financial report accurately to Government	3.7787	1.02525
ERP helped to draft required reports accurately	3.7979	1.01145

**Factor analysis of Post implementation**

Exploratory factor analysis on variables helps to reduce them into manageable set of factors. Principle component analysis method for 11 variables/components was done. The below table shows that 5 factors are extracted from the 11 variables.

**Table – 2 Communalities**

	Initial	Extraction
ERP reduces the risk and security issues	1.000	.699
ERP increases data transparency in procurements	1.000	.480
ERP helps to tracking history data quickly	1.000	.517
ERP reduces manufacturing cycle time	1.000	.513
ERP reduces delay in supply chain	1.000	.531
Our ERP reduces organizational costs	1.000	.468
ERP helps to maintain data accurately	1.000	.524
ERP enhances quality of decision making	1.000	.518
ERP increases work efficiency	1.000	.532
ERP reduces work load	1.000	.496
ERP improves communication within the organization	1.000	.512
ERP enhances inter-departmental coordination	1.000	.633
ERP helps to share work flows across functional boundaries	1.000	.540
ERP enhanced support to organizational activities	1.000	.548
ERP is integrated in the whole business process	1.000	.614
ERP made it easier to take advantage of new technology	1.000	.547
ERP provides us with competitive advantage	1.000	.523
ERP helped to meet the challenging business environment	1.000	.585
ERP helped to improve the relationship with suppliers	1.000	.693
ERP facilitated faster response to customer complaints	1.000	.400
ERP helped to improve the customer satisfaction	1.000	.504
ERP enhanced the stakeholders confidence	1.000	.521
ERP helped to submit financial report accurately to Government	1.000	.316
ERP helped to draft required reports accurately	1.000	.453

**Post- Implementation**

From that key factors are found for analysis that lists are given below; KMO measure was taken and the result of Kaiser-Meyer-Olkin measure (.536) and Barlett’s test of Sphericity (chi-square- 390.941 and significance- 0.000) indicate that the factor analysis done with all the variables is effective. So this implies that the factor analysis for data reduction was effective. 53.6% of variance can be explained by the ten components. The twenty four variables have been condensed to 10 factors.

**Individual impact:** Work Efficiency: ERP reduces work load .634 , ERP increases work efficiency .688; **Workgroup impact:** Communication: ERP improves communication within the organization .690 and ERP facilitated faster response to customer complaints .564. Integration: ERP enhances inter-departmental coordination .773. ERP helps to share work

flows across functional boundaries .508; **Organizational impact:** Cost reduction by using ERP (related to respective departments) Our ERP reduces organizational costs .599 ERP reduces manufacturing cycle time .584; **Information Quality:** Data management: ERP helps to maintain data accurately .719; **System quality** Data analysis & Transparency: ERP helps to tracking history data quickly .690 Security issues: ERP reduces the risk and security issues .795

**External: Vendor related:** ERP helped to improve the relationship with suppliers .792. **Customer related:** ERP helped to improve the customer satisfaction .558. **Business partners:**ERP enhanced the stakeholders confidence .601.**Competitive strategy:** ERP made it easier to take advantage of new technology.546. ERP provides us with competitive advantage .659 ERP helped to meet the challenging business environment .544.

**Kendall's W Test ranking analysis of key factors in ERP implementation**

**Table -3 Descriptive Statistics**

Key factors	Mean	Std. Deviation	Kendall's W Test Rank
Strategy related -ERP package	5.3227	2.76642	5
Technology related - Testing & Crisis management	6.5456	2.64043	9
Process related-Change management	5.9788	2.82835	7
Enterprise related -Top management support	4.4756	2.79417	1
Project related - IT infrastructures	5.4671	2.68932	6
Vendor related - Stakeholder relationship	6.9639	2.51057	10
Performance related -Organizational culture	6.0340	2.73335	8
End users related -Education & Training	4.6072	2.89252	2
HR related – End users attitude oriented	4.7113	2.80756	3
Quality related - Project team	4.8938	2.89044	4

Kendall's W<sup>a</sup> .080, Chi-Square = 340.111, Df=9, sig = 0.000

**From the Kendall's W Test** revealed that the p-value is less than the level of significant (i.e. p<0.05). So we can reject h0. Hence we concluded that the variables are significant and also concluded that variables are key factors to success ERP.

**CONCLUSION**

The research deals with ERP post implementation phases and factors and has provided the practical implications to the garment business domain in Tirupur District. End users are intermediate factor and they participated in all the phases of ERP implementation. In post-implementation phase, the ERP system helps to reduce the security issues. It also helps to track the required data. In most of the department they felt that the costs are reduced by after ERP implemented. But it could

not support the quality decision making. It integrates the departments well. Competitive strategies of those organizations are improved. It provides result oriented support to the suppliers and customers. Customer complaints after implementation reduced. In ranking analysis, Top management, End users attitude, project team and ERP package are important in terms of end user perspective.

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