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Issues and Challenges Faced During the Implementation of Enterprise Resource Planning of MSMEs in India



Abstract: - This paper aims to present the outcomes of a study that analyzed ERP deployment success factors in Indian Micro, Small, and Medium-Scale firms (MSMEs) based on a comprehensive compilation of the literature. The article aims to scientifically evaluate the most issues and challenges in the ERP deployment process as perceived by Indian MSMEs. This research aims to serve as a valuable guideline for MSMEs to ensure a successful conclusion of the implementation process. The research aims to investigate the factors influencing the installation of ERP systems at various stages of MSMEs. Confirmatory Factor Analysis (CFA) is used to identify the fewest components that account for the most variance in data. Indian companies, particularly Small and Medium Enterprises (SMEs), struggle to determine the appropriate adoption of these technologies. This paper discusses the concerns and obstacles faced by Indian MSMEs based on case studies of ERP implementation in Indian MSMEs and in-depth interviews with ERP suppliers.

Keywords: ERP, MSMEs, AHP, CFA, CSF.

1. Introduction

In the Indian Economy, Indian MSMEs play a crucial role as the driving force. They comprise the bulk of business enterprises and are essential for creating employment opportunities and reducing poverty. Indian firms in a knowledge-based economy have difficulty delivering a product of superior quality while maintaining a low cost to enhance their competitiveness on a global scale. Furthermore, Indian Micro, Small, and Medium Enterprises (MSMEs) are making concerted efforts to penetrate the international market and secure a prominent position for their products. In light of this situation, the BRICS countries (Brazil, Russia, India, China, and South Africa) have emerged as important participants in the global market. They aim to persuade Micro, Small, and Medium Enterprises (MSMEs) to adopt a new perspective and abandon the conventional MSME framework. The aim is to inspire BRICS entrepreneurs to reconsider and innovate their business practices to meet the demands of the modern global market. As per the MSMEs Development Act of 2006 by the Government of India, MSMEs in India are categorised as state-wise registered as shown in the following table. The total

Total MSMEs in India

Table 1: State-wise MSMEs in India

Micro Enterprises	16624
Small Enterprises	1114
Medium Enterprises	201
Total Enterprises	17943

State-wise MSMEs

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S. No.	State	Total	Micro	Small	Medium
1	ANDHRA PRADESH	780052	757038	21373	1641
2	ARUNACHAL PRADESH	12003	11679	304	20
3	ASSAM	434335	425833	7942	560
4	BIHAR	988542	972390	15331	821
5	CHHATTISGARH	340410	329561	9802	1047
6	GOA	49050	47541	1382	127
7	GUJARAT	1740670	1663513	70088	7069
8	HARYANA	797429	765934	28840	2655
9	HIMACHAL PRADESH	147886	144209	3296	381
10	JHARKHAND	414193	406304	7395	494
11	KARNATAKA	1380826	1339530	37993	3303
12	KERALA	570282	553123	15944	1215
13	MADHYA PRADESH	1153329	1126879	24721	1729
14	MAHARASHTRA	4111066	4012345	88657	10064
15	MANIPUR	64087	63510	552	25
16	MEGHALAYA	19163	18736	383	44
17	MIZORAM	21216	21006	201	9
18	NAGALAND	21582	21367	199	16
19	ODISHA	680723	667779	12110	834
20	PUNJAB	911088	885489	23543	2056
21	RAJASTHAN	1747331	1709075	35602	2654
22	SIKKIM	9709	9533	161	15
23	TAMIL NADU	2413730	2358744	50632	4354
24	TELANGANA	840618	814567	23442	2609
25	TRIPURA	52051	51125	863	63
26	UTTAR PRADESH	2307015	2252263	50872	3880
27	UTTARAKHAND	237080	231335	5339	406
28	WEST BENGAL	982220	949915	29647	2658
29	ANDAMAN AND NICOBAR ISLANDS	11895	11651	234	10
30	CHANDIGARH	37705	35824	1698	183
31	DELHI	595915	558123	33817	3975
32	JAMMU AND KASHMIR	393848	389106	4458	284
33	LADAKH	10077	9968	106	3
34	LAKSHADWEEP	841	841	0	0
35	PUDUCHERRY	35806	34892	834	80
36	THE DADRA AND NAGAR HAVELI AND DAMAN AND DIU	17943	16628	1114	201

source: <https://msme.gov.in>

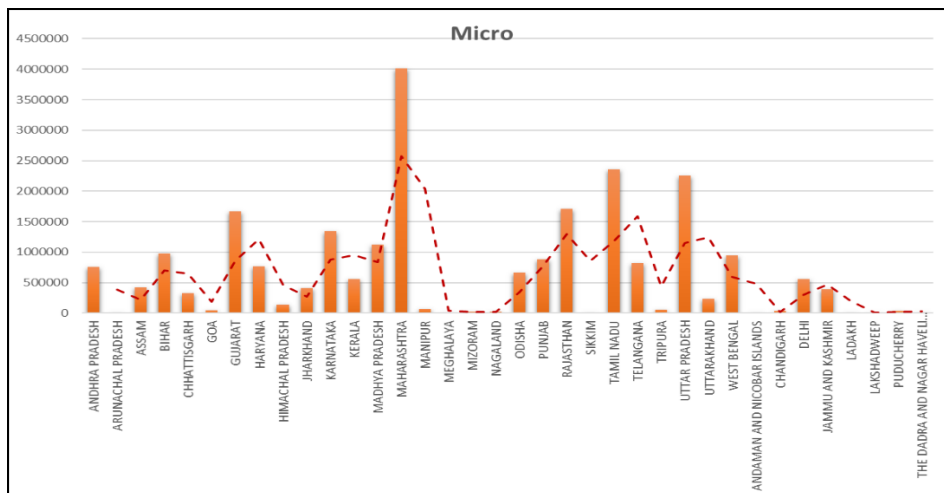


Figure 1: Bar graph of Sate-wise Micro Enterprises

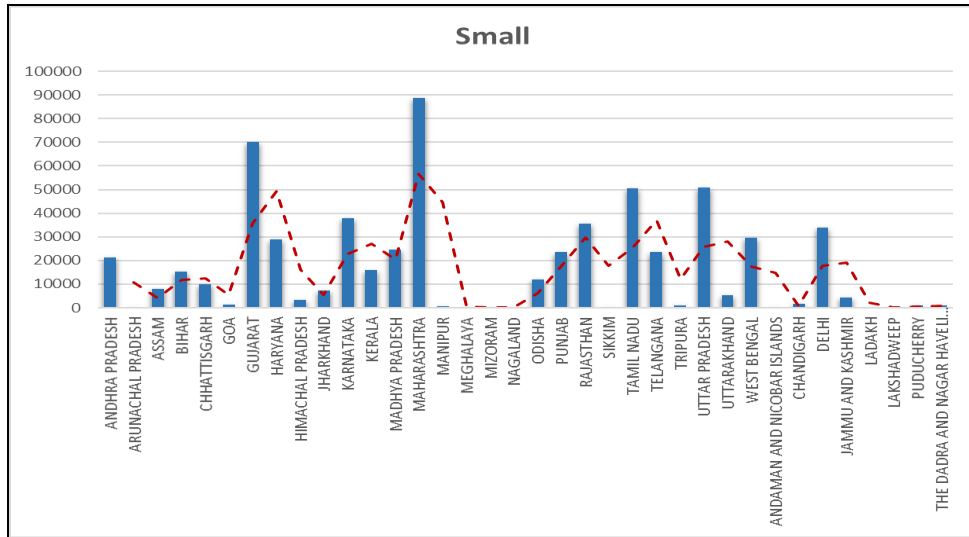


Figure 2: Bar graph of Sate-wise Small Enterprises

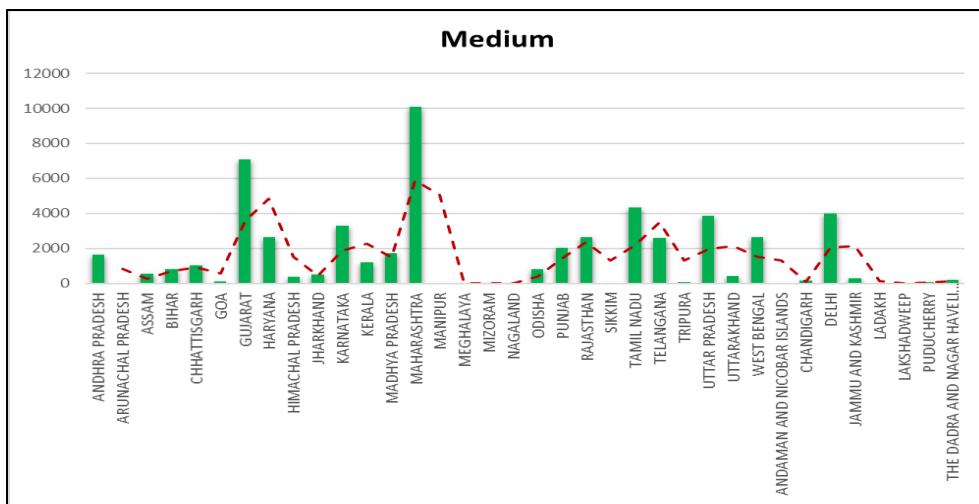


Figure 3: Bar graph of Sate-wise Medium Enterprises

The current focus of ERP research has primarily been on Large Enterprises (LEs), and the findings cannot be readily applied to Indian Small and Medium Enterprises (SMEs) due to their unique characteristics. The needs, operational prerequisites, logistical fulfilment, and financial capacities of MSMEs differ significantly from those of LEs. Lately, there has been an increased focus on researching ERP in MSMEs. This study enhances the existing research on ERP by focusing on Indian MSMEs and offering valuable insights that may have been disregarded in other studies. ERP deployment in Indian MSMEs, this research aims to fill this knowledge gap by examining how ERP is implemented. This study identifies and prioritizes the key elements contributing to ERP adoption failure in Indian MSMEs. ERP systems are comprehensive software packages designed to integrate all aspects of a business's operations, allowing for seamless sharing of data and increased visibility.

2. Related works

The literature research revealed that the Indian MSME sector has been neglected despite being one of the country's fastest-growing industries. Several empirical studies have been undertaken to uncover the crucial characteristics that impact the success of ERP deployment, with multiple researchers investigating the main factors. The literature review has identified and emphasized the major criteria that determine the successful deployment of ERP in MSMEs. These factors have been briefly reviewed to gain an understanding of the present research situation.

Ngai et al. (2008) state that ERP solutions offer numerous advantages to enterprises, but they also have a significant rate of failure. Academicians and academics have posed the question: The causes behind the unsuccessful implementation of ERP? Several factors mentioned in the literature include insufficient top management support, employee opposition, inadequate selection of ERP system and vendor, and so on. Most of this research has utilized case studies to draw their conclusions, whereas just a small number have employed the empirical approach to investigate the ERP system. Therefore, it is imperative to get a more comprehensive comprehension of the critical success factors (CSFs) associated with the deployment of the enterprise resource planning (ERP) system.

Buonanno et al. (2005) assert that the adoption and implementation of ERP systems can be a highly intricate undertaking. They emphasize the need for strong managerial and strategic skills to ensure that the system aligns effectively with the unique characteristics of the business. Additionally, they highlight the inevitable organizational changes that occur as a result of ERP implementation. Moreover, the reasons behind the long-term adoption of ERP systems within MSMEs were previously exclusively explained by situational or exogenous factors. Momohet al. (2010), explain mostly attributed to a deficiency in comprehending how to effectively tackle significant obstacles throughout the execution phase, resulting in the termination of projects, substantial financial deficits, and overall project failures. Menon et al. (2019) conducted a study on the challenges faced during ERP implementation and identified sixty critical challenges. Among these, the top twelve challenges were found to be particularly significant. These challenges included the disbandment of the project team too quickly, interface issues, inadequate testing, difficulties in change management, a short period of hyper-care support, data cleansing problems, excessive customization, and a lack of understanding of the complexities by the leadership. McAdam et al. (2005) identified BPR or BPM as a crucial element for the successful adoption of ERP. Moreover, BPR can be defined as the process of completely reevaluating and fundamentally redesigning business processes to produce significant enhancements in key performance indicators, such as cost, quality, service, and speed. The installation of ERP necessitates a thorough analysis of numerous business processes, which is considered to be a significant and advantageous outcome of adopting the ERP system. Saini et al. (2013) discovered that ERP consultants are required to participate in various stages of the ERP project implementation. Therefore, it is an essential determinant of success and must be meticulously maintained and monitored. Implementing an ERP system necessitates the involvement of proficient internal or external professionals who possess expertise in the installation and software due to its intricate nature in their research on ERP installation

3. Research Gap

The key determinants that impact the lack of success in implementing ERP systems in Indian MSMEs, which key variables should be given top importance when assessing the failure of ERP installation at Indian MSMEs.

4. MSMEs

The Ministry of Micro, Small, and Medium Enterprises (MSMEs) is the primary government department responsible for fostering and advancing the MSME sector, which encompasses Khadi, Village, and Coir Industries. The present leadership of the MSME ministry comprises Shri Narayan TatuRane as the Minister and Shri BhanuPratap Singh Verma as the Minister of State. The NBMSME, established under the MSME Development Act of 2006, serves as the primary advisory entity of the government for all issues related to the MSME sector. The board consists of representatives from the central and state governments, industrial associations, financial institutions, academic institutions, and other stakeholders.

The responsibilities of the NBMSME encompass the following:

- i) The objective is to investigate the elements that influence the promotion and growth of Micro, Small, and Medium Enterprises (MSMEs) and propose appropriate solutions.
- ii) Examine the policies and programs implemented by the central and state governments regarding MSMEs and provide suggestions for enhancing their effectiveness.
- iii) The purpose is to guide the government regarding the allocation and utilization of funding and incentives for the MSME sector, as well as to oversee the implementation of these measures.
- iv) To facilitate collaboration with other ministries, departments, and agencies regarding MSMEs and to guarantee

alignment of MSME lending schemes and efforts. v) The objective is to promote the involvement of MSMEs in global trade and propose strategies to improve their competitiveness and market entry.

The Ministry of (MSMEs offers a range of services through its affiliated offices, independent organizations, and government-owned companies. Several of these services include:Facilities for conducting tests, Development of entrepreneurship, Project profiling a service provided by a consultancy, Export support, and Environmental assessments.

4.1 Features of MSMEs

- MSMEs are recognized for their ability to offer substantial support in facilitating entry to both domestic and international markets for firms.
- It assists in various aspects of a firm, including product development, design innovation, intervention, and packaging.
- It contributes to the advancement of technology, improvement of infrastructure, and overall modernization of this sector.
- It offers job opportunities and financial assistance in the form of loans.
- MSMEs extend credit limitations or funding assistance to many banks inside the country.

4.2 The MSMEs in the Indian Economy

The MSME sector has demonstrated its significant influence in predicting the trajectory of the Indian economy. MSMEs contribute to the growth and development of different product categories and industries by producing and manufacturing a wide range of items for domestic and international markets. MSMEs have been instrumental in creating job possibilities in disadvantaged regions. They have facilitated industrializationinthese regions with relatively minimal initial investment, in contrast to the larger industries located in urban centres. MSMEs have made significant contributions and played a vital role in the country's growth across several sectors. They are characterized by low investment requirements, operational flexibility, minimal reliance on imports, and substantial contributions to local production.

Capital Allocation

Micro Enterprises	Rs. Less than 1 Crore
Small Enterprises	Rs. 1 – 10 Crore
Medium Enterprises	Rs. 10 – 50 Crore

Turn Over Limit

Micro Enterprises	Rs. Less than 5 Crore
Small Enterprises	Rs. 1 – 25 Crore
Medium Enterprises	Rs. 25 – 250 Crore

5. ERP System& Critical Success Factors

Enterprise Resource Planning (ERP) is a software system used for managing and optimizing an organization's activities, processes, and workflows through automation and integration. The enterprise modules, referred to as business applications, are designed to address certain business areas and operate in synergy to fulfil the company's requirements. Due to the varying sizes and requirements of enterprises, a standardized strategy using modules is not suitable for all. An organization has the freedom to selectively decide which modules are most appropriate for their business. An enterprise resource planning system can provide maximum value when a

corporation utilizes modules specific to each business function. ERP adoption eliminates data silos and streamlines data collecting by providing a centralized home for all corporate data, hence reducing data duplication concerns. There are some critical success factors are explained for the implementation of the ERP system. i) Top management support, ii) ERP system selection, iii) Business plan and vision, iv) Effective project management, v) Teamwork and composition, vi) User involvement, and vii) Re-engineering business process.

• **Top management support**

Implementing an ERP system has a significant impact on all aspects of an organization. Furthermore, it serves as a strategic investment for a corporation in the long run. Therefore, it is crucial that the senior leadership actively engages in its execution. As an organisation, it is undesirable to be burdened with an ERP system that is created with a long-term perspective to support personnel but ends up being unused. It has the potential to become chaotic.

- i) Engage employees from several departments.
- ii) Consider the initiative and lead by example.
- iii) Efficient strategic planning and optimal use of resources.
- iv) An approach to overcome significant obstacles.
- v) Post-implementation feedback.

• **ERP system selection**

Assessing the alignment between the functionality of ERP software products and services for organizations is the crucial and time-consuming component of the ERP decision process. To determine the most suitable functional fit, one must assess ERP software, observe ERP demonstrations, and speak with solution advisors. Additionally, it encompasses internal tasks. An essential step in a selection process is to promote internal talks to identify the organisation's requirements for ERP and specify the functional areas that need to be addressed.

• **Business plan and vision**

While many firms initially have good intentions when it comes to implementing an ERP system, a significant number fail to maintain their commitment to continuous improvement. A vision statement can assist a corporation in accurately aligning the priority of the ERP system within the broader business plan. The ERP system is utilized daily. The data, individuals, and procedures linked to it should mirror the culture and mission of the firm. Having a clear vision statement can serve as a guiding force to prevent losing sight and long-term goals for the program, especially when the initial excitement of implementing the ERP system diminishes.

• **Effective project management**

ERP systems have significantly transformed the operations of IT firms. Managing ERP implementations is challenging due to their immense scale and intricate nature. ERP management can be divided into two fundamental aspects: human resources and technology. An ERP software solution has a wide-ranging impact on the entire organization and has the potential to influence the majority of employees. In certain instances, an ERP project manager may lack the ability to ascertain the individuals who will be impacted, perhaps resulting in unpleasant and unexpected outcomes. The project manager must handle a large quantity of components. Regardless of whether developing a single module or numerous modules, it is crucial to ensure consistency and complete integration throughout all the subprojects. This task requires a significant amount of effort, even for a seasoned system architect.

• **Teamwork and composition**

ERP implementation teams might exhibit variability in terms of roles, nevertheless, they typically encompass certain positions. The complete team should participate in both the selection and implementation phases of an ERP project. The primary advantage of this approach is to ensure that every member feels included in the decision-making process over the selection of a package, thereby fostering a sense of accountability for its success. If the team is unable to reach a consensus on a single Enterprise Resource Planning (ERP) solution, a competent project owner will be required to manage and minimize the negative consequences of this disagreement.

• **User involvement**

There is much ambiguity surrounding the concept of user interaction, necessitating immediate clarification. User involvement has been inconsistently employed as a synonym for both participation and engagement. The conceptualizations are also very similar to each other. To ensure conceptual consistency across study disciplines shall adhere to the recommendation that "user involvement" should be understood as the psychological state of an individual. It is defined as the level of importance and personal relevance that an individual attaches to a specific system. Users can assign personal significance and relevance to activities related to the development or implementation of a system. User participation, in this context, refers to all actions and activities that the user engages in during the implementation process. When considering the distinction between user involvement and user participation, it is intriguing to explore their relationship. User participation will be seen as a significant precursor to user involvement.

• **Re-engineering business process**

Business Process Reengineering is a crucial approach that modifies existing business processes to enhance productivity, quality, and cycle time. This process of revamping enables the management of any firm to reconsider its current procedures before progressing to a more sophisticated stage to optimize and automate its enterprise processes through the adoption of an ERP system. Now, a couple of other reasons why this is significant.

- i) Preserve or acquire a competitive edge.
- ii) Proficient knowledge of business operations.
- iii) Avoid the strategy of just following existing practices without considering other approaches.

6. Methodology

This study utilizes a survey methodology and statistical tool to assess the impact of different Critical Success Factors (CSFs) on the efficacy of the ERP system. The study also relies on structured data acquired through an exploratory study. This study employed both quantitative and qualitative research approaches, incorporating empirical studies. The data was gathered from several Indian MSMEs that have been utilizing ERP systems for a minimum of three years. These MSMEs are primarily located in the industrially developed cities of Rajasthan, specifically in the states of Punjab, Haryana, Himachal Pradesh and Odisha. The 876 sample data collection was accomplished by the utilization of a formal questionnaire employing a straightforward procedure, wherein the research objective was communicated to the respondent. The statistical software programs were used to determine the different CSFs that are responsible for the efficient deployment of ERP.

After that, we used the Analytic Hierarchy Process (AHP) for the priority of the CSFs. The AHP process that involves assigning importance weights to the criteria to define the ultimate goal. This is accomplished by systematically comparing the criteria in pairs. The scale of AHP is 1- Equal Importance, 3- Moderate Importance, 5- Strong Importance, 7- Very Strong Importance, and 9- Extreme importance (2,4,6,8 values in-between).

7. Data Analysis AHP analysis Priorities

Cat	Priority	Rank	(+)	(-)
1 Top management support	45.3%	1	24.9%	24.9%
2 Business plan and vision	24.2%	2	9.7%	9.7%
3 Re-engineering business process	12.5%	3	4.8%	4.8%
4 Effective project management	8.2%	4	3.8%	3.8%
5 Teamwork and composition	4.5%	5	1.3%	1.3%
6 ERP system selection	3.0%	6	1.1%	1.1%
7 User involvement	2.3%	7	1.2%	1.2%

Figure 4: Criteria based on pairwise comparisons

Decision Matrix

	1	2	3	4	5	6	7
1	1	2.00	8.00	8.00	8.00	9.00	9.00
2	0.50	1	2.00	6.00	5.00	8.00	7.00
3	0.12	0.50	1	2.00	5.00	4.00	6.00
4	0.12	0.17	0.50	1	2.00	5.00	6.00
5	0.12	0.20	0.20	0.50	1	2.00	3.00
6	0.11	0.12	0.25	0.20	0.50	1	2.00
7	0.11	0.14	0.17	0.17	0.33	0.50	1

Table 2: The principal eigenvector of the decision matrix

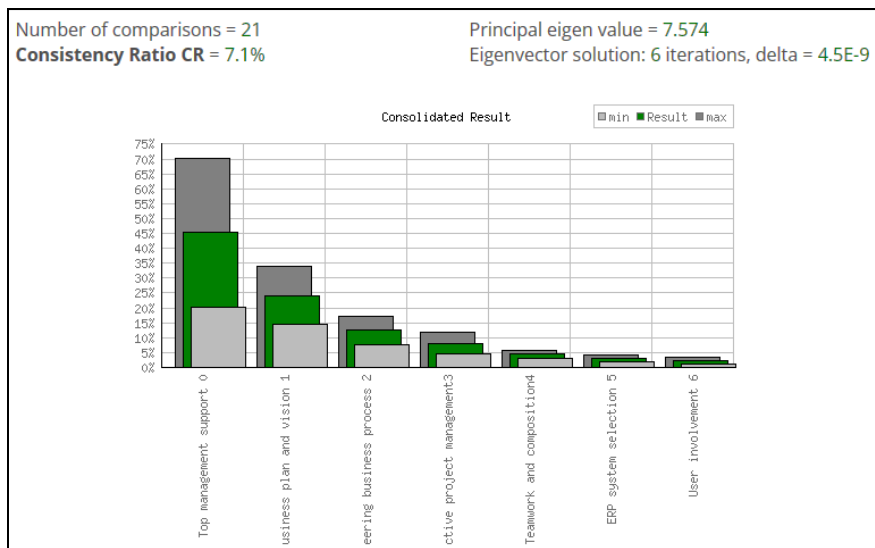


Figure 2: Criteria based on pairwise comparisons

As per Figure 1, we can observe the priority of the CSFs. The priority rank 1 is “Top Management Support” with 45.3%, the priority rank 2 is “Business Plan and Vision” with a priority of 24.2%, the priority rank 3 is “Re-Engineering Business Process” with 12.5%, the priority rank 4 is “Effective Project Management” with a priority of 8.2%, the priority rank 5 is “Teamwork and Composition” with 4.5%, the priority rank 6 is “ERP system selection” with a priority of 3.0%, and the priority rank 7 is “User involvement” with 2.3%. Figure 2 the bar graph shows the consolidated result with a consistency ratio of 7.1%, Principal Eigen Value is 7.547 as per the mentioned ranking.

8. Conclusion

Although there may be valid technological reasons to update ERP software, MSMEs must prioritize business-focused motives to maximize their overall company benefits. Commencing business process management efforts at the earliest opportunity is crucial to facilitate stakeholder comprehension of the extent of change required to predict the business consequences of transitioning from the present state to a desired future state. The success of the ERP deployment is contingent upon the employees, as their utilization of novel technology directly influences the business advantages. Consequently, a strong emphasis on change management is necessary. Acquiring firm support from top-level executives requires a significant investment of time and energy. It is crucial to prioritize business-oriented needs over technology-oriented needs. Effectively controlling project scope is a method to mitigate the threat of budget overruns. Allocating resources early on in the ERP

selection phase might lead to a decrease in implementation expenses. To prevent delays in the project schedule, it is imperative to establish a practical timeline that takes into consideration all necessary project tasks, however, it would be intellectually stimulating for future studies to further explore the efficacy of the ERP system in change management, to facilitate the transition of Indian MSMEs into the realm of digital MSMEs.

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