# End user Acceptance a Key to ERP implementation in Higher Education

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**Abstract**
Information resources of various process of the Academic institutions are integrated using Enterprise Resource Planning software. This paper is going to analyze the essence of End-user acceptance in ERP implementation in the Higher education. The issues covered include the usage of the software by various stakeholders, users and the process owners, extent of deployment, benefits derived from implementation. Understanding the expectations of the end-users and creating the features and analytics based on the end-user requirement thus ensure complete acceptance of the end-user

**Keywords –** ERP implementation, End user Acceptance, Successful implementation, Higher Education, Information System

## 1 Introduction

Enterprise Resource Planning software are widely used in the Higher Education sector store and. Process the information relating to the academic processes thus ensure the smooth flow of information across various departments in the institution. Higher education Sector ERP primarily deal with data belonging to the students, courses, departments, subjects, faculty, infrastructure in addition to the finance. Most of the Higher Education institutions depend on various software to deal with processes such as Admissions, Student Lifecycle, Placement, International Exchange, Research etc. In a decentralized automation implementation process owners are allowed to choose a software product based on their process requirement. Under these circumstances the Data is stored in different locations under various servers resulting in data redundancy and lack on data integration. End-users are forced to use different applications for different processes thus resulting in process complication. Integrating the data stored in various applications to create analytics on the processes are hilarious.

However, these issues could have been eliminated if the Higher Education Institution owns the software used for automation by way of buying the software with its source code or develop the entire software inhouse. Advantage of owing the software source code or developing a software inhouse are

1. Software could be customized easily
2. Additional features could be created based on the organization's requirement.
3. Flexibility to grow along with the Growth of the organization
4. No additional cost involved in expansion / Hidden cost
5. Process integration for smooth flow of data cross various stakeholders
6. Data could be integrated easily
7. Easy end user acceptance

In a higher education sector, automation processes are used by various stakeholders of the institution, Students (80%), Faculty (10%), non-teaching staff (5%), Officers and Management (2%), and other Users (3%). The following Diagram depicts the processes and various users under these processes.

Stakeholders in Higher Education Institute

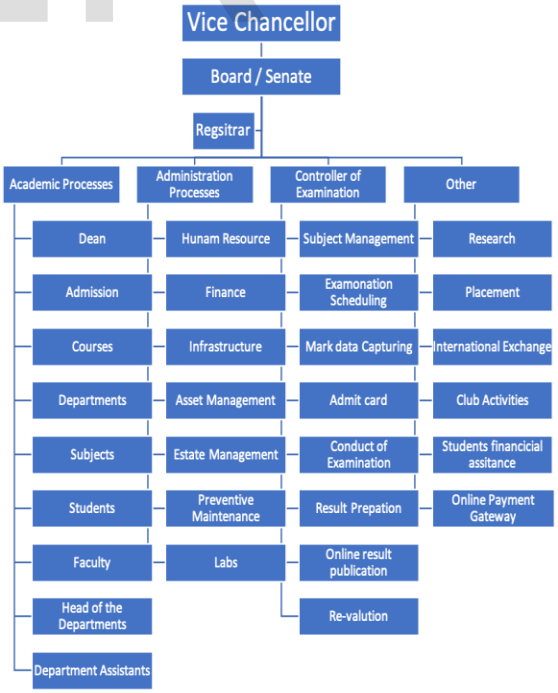



Fig 1Stakeholders in Higher Education Institution

## 2 Objective

Primary objective of this study is to understand the various features used by the users in the ERP software implemented in the higher education institutions and how the end-user acceptance influences the success of ERP software in the Higher Education institution.

## 3 Review of Litreature

Enterprise Resource Planning application for Higher Educational Sector is defined as an application that is acquired, developed, customised to integrate various functional activities such as Student Lifecycle Management, Academic Administration, Human Resource (Faculty & Employee) Estate Management, Asset Management, Finance, Project Management, Controller of Examination result preparation, placement, alumni etc. Application architecture facilitate the flow of information across various departments, various functions in the Higher education institution. Single development environment with a common database ensure non redundant secured data available at ease.

Olson and Davis (1985) defined implementation as preparing an organization to receive an information system for its effective use[1]. Turnipseed et al. (1992) found that people's involvement in implementation, support for the system and the level of usage are highly correlated to the success of such a system[2]. Hong K, Kim Y et al. (2002) sates that Implementation of ERP systems involved a high degree of complexity and adaptation to different organisations[3].

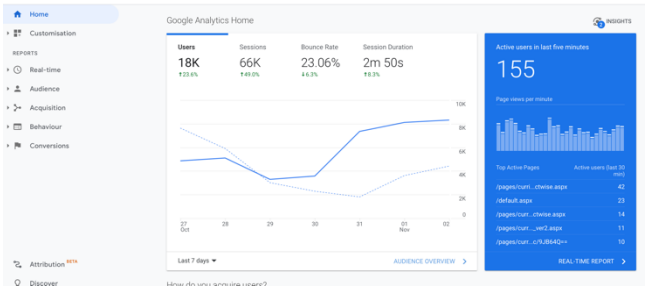
The availability of up-to-date information not only for the administration within a higher education institution, but also for the other stakeholders of the institution like students, teachers, non-teaching staff, researchers, etc. [4]. Higher education institutions believe that it is extremely difficult to implement a ERP solutions due to huge investment and the and risks involved, whereas the return on investments is medium to long-term [6].

Nevertheless, many higher education institutions do not implement integral information solutions ERP systems. The reasons can be found in existing "good enough" information solutions, which are used by the institution and the unwillingness of institutions for changes and investments (other priorities, not being ready) [5].

## 4 Methodology

Implementing the ERP application in the Higher Education institutions is the most challenging task than the ERP implanted in the other sectors Primarily due to age group of end-users. Majority of the users are students and on the other hand experienced and rigid academician and officials who are used to their own perspective about the work. Many of the Higher Education institutions maintained the data in a manual format for decades and the officials, faculty members are used to these manual processes.

Most of the Higher Education Institutions started with automation of processes and moved on to the online mode of education during the COVID-19. Many of the institutions




faced a stiff resistance while implementing the process automation in their institutions which have not used any process automation for decades. In order to understand the usage of the application Google Analytics could be used.

Google Analytics tools, Plesk panel control and system logs could be used, in order to ascertain the extent of usage of application by the end users, Google Analytics provides data on Current Users, devices used for access, where the server is accessed from, when are they accessing it, timing of access, pages accessed etc.

Fig 2 Realtime user Analytics

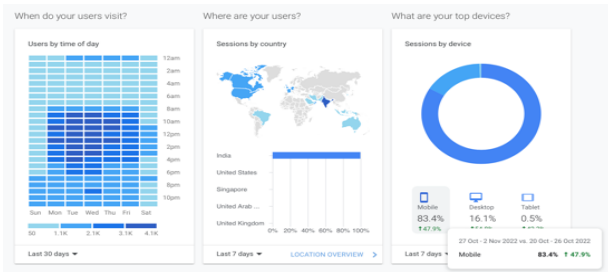



Fig 3 Realtime user Analytics Graphical

System Logs plays a vital role in identifying the end-user usage. System logs keeps track of pages visited by the users, data captured, changes made in the data, reports viewed. System logs also provide clear picture on date, time, Ip address, Pages visited, changes made in pages etc.

TABLE 1
User Log information

| SNO | USER | LOGIN TYPE | FORM TITLE | UPDATE TYPE | DATE | IP Login |
|---|---|---|---|---|---|---|
| 1 | Raj | Student | Login Page | SUCCESS-FULL LOGIN | 03.10.2022 09:54:16 | 114.217.140.196 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | Raj | Student | Home | VISITING THE PAGE | 03.10.2022 09:54:16 | 114.217.140.196 |
| 3 | Raj | Student | Sub Menu - List | VISITING THE PAGE | 03.10.2022 09:54:26 | 114.217.140.196 |

Similarly, Plesk panel details also provides details of number of Unique visitors to the portal, Number of Visits, Pages Visited, Hits, and Bandwidth used day wise and Month wise. Plesk panel provides clear picture on how effectively the application is used by the users including the bandwidth used by the stakeholders.

TABLE 2
Plesk panel usage information

| S.NO | Month | Unique visitors | Number of visits | Pages | Hits | Bandwidth in GB |
|---|---|---|---|---|---|---|
| 1 | Jan-22 | 109,000 | 163,000 | 3,616,860 | 4,714,989 | 105 |
| 2 | Feb-22 | 64,350 | 91,750 | 1,397,999 | 1,884,339 | 62 |
| 3 | Mar-22 | 91,150 | 131,800 | 2,475,780 | 3,297,858 | 127 |
| 4 | Apr-22 | 138,700 | 222,400 | 4,412,280 | 5,545,949 | 326 |
| 5 | May-22 | 152,190 | 238,600 | 6,281,590 | 7,424,847 | 258 |
| 6 | Jun-22 | 65,990 | 91,200 | 1,811,599 | 2,466,768 | 84 |
| 7 | Jul-22 | 48,950 | 66,900 | 1,377,020 | 1,852,819 | 75 |
| 8 | Aug-22 | 110,120 | 149,000 | 4,438,820 | 5,480,649 | 146 |
| 9 | Sep-22 | 105,390 | 146,500 | 2,801,380 | 3,575,399 | 112 |

## 5 Findings

### 5.a. Response

A Survey was taken in the past 4 years from the students who are using the system. Study was conducted on a. whether they are using the portal or not? b. Whether the student I using the portal for tracking the academic performance? c. whether the portal is user friendly? d. What is not user Friendly in the portal? e. Whether they are willing to contribute in providing User Interface? In each year 15 to 25% students participated in the study.

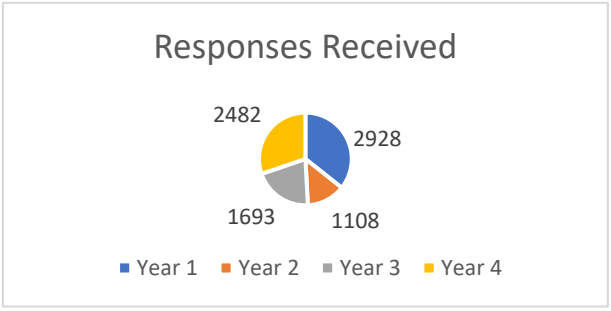



Fig 4 End user response

***5.b. Software Usage:*** In the first year out of 2928 respondents 2791 respondents confirmed that they are using the Software which is about 95.32% In the second Year 1069 out of 1108 respondents confirmed that they are using the Software which is about 96.48%. In the Year 3 1642 out of 1693 respondents confirmed that they are using the Software which is about 96.99%. In the Fourth Year 2457 out of 2482 respondents confirmed that they are using the Software which is about 98.99%. This clearly indicates students who are the major stakeholders of the ERP applications are effectively using the system.

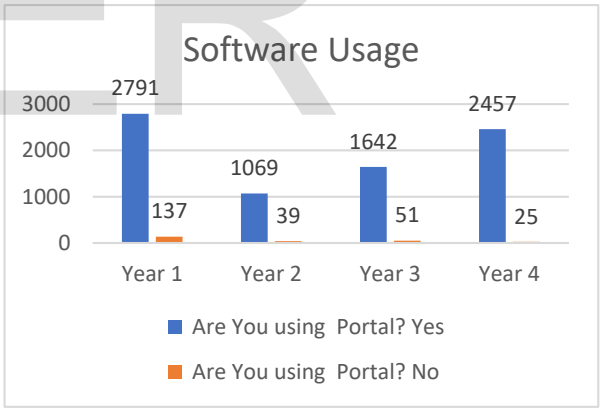



Fig 5 Software Usage

***5.c. Used for Academic Performance:*** In the first year out of 2928 respondents 2821 respondents confirmed that they are using the Software which is about 96.35% In the second Year 1049 out of 1108 respondents confirmed that they are using the portal which is about 94.68%. In the Year 3, 1433 out of 1693 respondents confirmed that they are using the Software which is about 84.64%. In the Fourth Year 2180 out of 2482 respondents confirmed that they are using the Software for monitoring academic performance, which is about 87.83%. This clearly indicates students who are the major stakeholders of the ERP applications are effectively using the system for monitoring academic performance. However, there is drop in the % students using the Software for monitoring

academic performance which has to be ascertained.

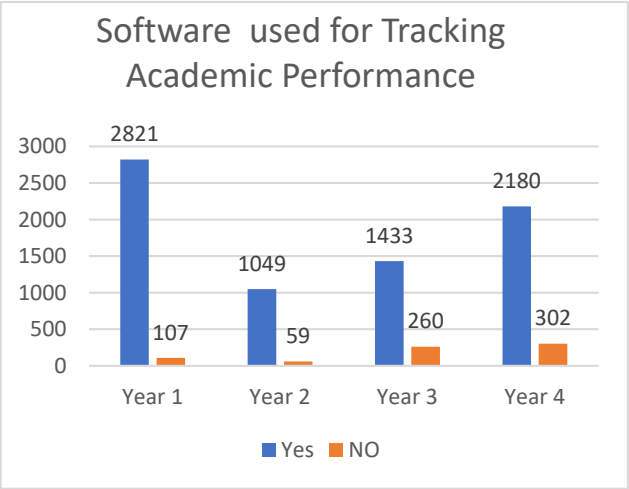



Fig 6 Academic Performance

***5.d. Easy to use:*** In the first year 2788 (95.22%) students indicated that the software is user friendly. In the Year 2, 1010 (91.16%) student indicated that software is user friendly. In the year 3, 1213 (71.65%) student indicated that software is user friendly. 1920 (77.36%) students found that the software is user friendly in Year 4. In the last couple of years, more number of respondents are finding the software not user friendly.

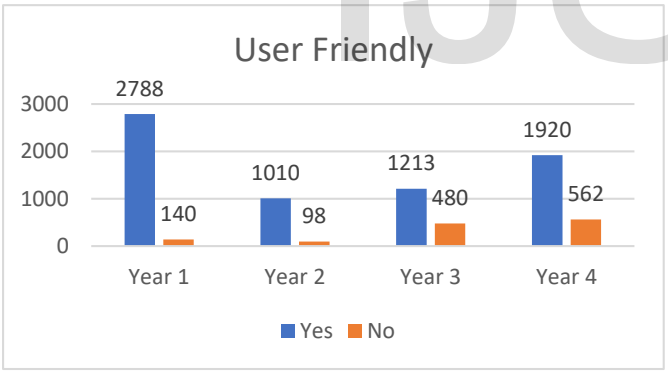
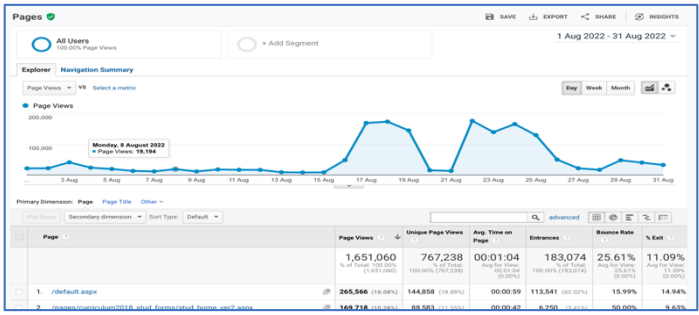



Fig 7 User Friendly

In order to understand the Endusers views, endusers were asked to comments about Layout, Access and feaures available to them. 11.29% responants indicated that Layout was not user friendly, 14.63% respondants indicated the Access was not user fiendly, 12% espondants indicated that the features available were not user friendly. Hwever whenb they were asked whether they are willing to provide inputs for enhansing the software interface 25.60% agreed that they could provide inputs.

## 6 Conclusion

Assessing Enduser Acceptance : ERP in Higher education




institutions are used by severl stakeholders by Top Management, Faculty, Department Heads, Non Teaching staff, Students

Creating meaningful reports and features that could attract the end-user to use the system.

End user acceptance could be assessed from the list of features created for the users and how frequently they access the feature. For example, Students keep track of Attendance on a regular basis, similarly faculty members update attendance and marks and head of the department keeps a track of classes conducted. At the same time some features could be used once in a semester like student applying for financial assistance, accessing the result page, subject master creation etc.

100% usage of ERP system cannot be achieved in any implementation. It's something like smart phone. Even though smart phones are loaded with hundreds of features very few features are constantly used users. Similarly, some of the users do not use the features created in the system. The reason for not using the system should be ascertained.

1. End user may not be a technology savvy person or does not understand the process. This issue could be addressed with continuous monitoring and periodic training
2. Resistance to change could influence the non-usage of features which has to be dealt by the management. Making the user understand that the process mandatory, without which process cannot be proceeded further.
3. Time taken to access the feature like traffic, Connectivity issues, downtime may force the end user to lose the enthusiasm to use the features.
4. Trying to access or update information in the last moment. Students most of the time try and update information at the last moment. Sometime they are due to heavy traffic

In order to assess the usage by end users Google Analytics could be used to find out the features used by the users. Once such feature is to keep track of the peak traffic and speed of the site in a period and pages accessed

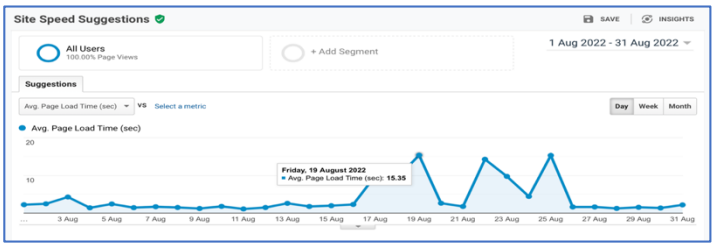



Fig 8 User peak traffic

Google analytics could also be used for site content usage of pages and duration of visit etc. These details could be used to identify most preferred features, most frequently used features and unused features

Fig 9 Site usage

Exclusive charts area available to track the access flow in the process


Fig 10 User access information

## 7 Limitations

End user acceptance is a key to successful ERP implementation in Higher education Institution. However, it's very difficult to ascertain end user acceptance in certain cases. 100% acceptance in ERP implementation is impossible in any automation process. However, Management driven ERP implementation could see better results as end users are aware of the fact that the processes and implementation is monitored by the Management. Professional Ego of the individuals working in the organization play a significant role in end user acceptance. Role definition with accountability shall ensure the effective end user acceptance.

## 8 Author

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