Role of Enterprise Systems in Organizations

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# Introduction

Enterprise Resource Planning (ERP) is a software that is used in different functions of the organization which are integrated together to form a coherent unit. The ERP components are integrated across the organization which helps the inflow of information throughout the firm within each and every related departments. The ERP components from different functions combine to form a part of the business process. With the progress in technology, many ERP architectures have been introduced with their separate specifications. Nowadays, each organization has a choice of multiple platforms that can be adapted according to their needs. Each architecture has its own characteristics that make it perfect for a certain type of organization. Firms can select the right ERP for their setup by identifying which functions are going to be automated, how many resources can be spent on such a project, what is the overall size of the firm, etc. Keeping these things in mind, the organizations need to select the best suited ERP. It is necessary that much research is done on the best type of ERP for the organization as ERPs are the backbone of an organization. The ERPs help the organizations run their day to day activities smoothly.

The main architecture of ERP consists of software components that are given access to a centralized database. The centralized database is responsible for storing the data of the entire organization and its different functions. Most of the major organizations have started utilizing ERPs in their business models to efficiently handle their day to day tasks. Every organization today wants to be the best. By automating the functions as much as possible, organizations can increase the efficiency of their tasks. Saving time in the world today leads to much better results in terms of the business gained.

***Advantages of the ERP System***

As mentioned above, ERPs have made their way in the business models of almost each and every large organization. The implementation of ERPs has provided ease and efficient handling of the business processes. No organization can survive without the use of technology in their whole setup as that is the way forward. Not keeping up with the latest trends may result in the complete failure of the business. Some of the main advantages of ERPs are:

* Business process optimization: ERPs are utilized in almost all of the major functions of the organization be it marketing, finance, HR or any other. For the success of any business, it is necessary that these functions coordinate. The data flows between these departments regularly so it is necessary that the tasks are handled quickly and with optimal proficiency. ERP provides the necessary mechanism for such a feature’s implementation.
* Centralized storage: One of the major needs of an organization is that the data flow through the organization takes place without redundancy. It is necessary that each and every department gets the same updated information. ERPs with their centralized databases allow organizations to remain updated all around the firm. No department can work with outdated information. If there is an absence of the centralized database, all the functions within an organization have to keep track of the data separately. This data would be shared among each other upon request. Such a procedure would cost the firm precious time.
* Customizable: ERPs are customizable and can be modified in multiple ways to fit the needs of that particular organization. This eliminates the possibility that there is useless information being handled. The customizing feature of the ERPs helps make the tasks more efficient such that excessive processing is not needed. The best-suited modules are implemented and updated according to the requirements of the organization.
* Time-saving: As all the data is centralized and properly customized, the necessary information is accessible by the organization almost instantly. When working with large organizations, time-saving means more chances to be productive. Any delay that may arise due to redundancy or lack of efficiency is taken care of when deploying such systems.
* Competitiveness: As all the big firms are moving towards software solutions to run their business, it gives any organization that employs these software an advantage in the competition. No organization can survive if it does not adapt to the changing environment. There aren’t many firms that have not implemented ERPs in the modern world. In some form or another, ERP concepts have been applied almost in every firm to stay in business.
* Ease of update: ERPs are easily customizable so they can be updated if new features are to be added. There is no need to implement new software solutions. ERPs can be customized without changing the overall setup which decreases the cost of buying a new solution (Hawking, et al., n.d.). In the old days, having multiple software setups would result in much effort being spent on updating them. Each of the software would have to be configured when changes are required.
* Focused cost: The company, with the help of ERPs, can reduce the cost that is spent on software solutions. Since ERPs provide a centralized system, there is no need to spend extra money on a separate system for every function in the organization. Thus, the cost gets focused on the implementation of the ERP.
* Multiple architectures: The ERP systems come in different architectures. These allow the organizations to select the one that suits them the best according to their specific needs. The company size, available resources, and other factors play a role in deciding which architecture should be used.
* Improved reporting/quoting: The ERP features provide the organizations with reporting capabilities. The reports that are generated can be customized according to the specific demands of the management. Also, quoting can be done through ERPs. Quotes can be developed as a result of data requests. Each department can customize its own reports thereby, decreasing the reliance on the IT department.
* All in one: The ERP can be used by the higher management of the organization to view each and every detail at once. There would not be any need for the development of detailed reports that would feature the company’s progress. Just performing regular functions will record all the necessary information and then produce the desired output to the management.

***Role of ERP in System Integration***

One of the main reasons for using ERPs is that it provides a mechanism by which different systems are integrated and then work together. The functions are logically connected to each other through the ERP software as well as the centralized database.

Some of the modules that make up the whole ERP include:

* Financial Management
* Human Resource Management
* Inventory Management
* Customer relationship management
* Business intelligence

The above modules are the core functions of any organization without which it gets impossible for the firm to survive. Having an ERP focused on these particular functions is necessary as these can contribute hugely towards the rise of the company.

*The need for ERP integration solution*

 Any organization has multiple functions that work together to make the business process a success. These days, it is necessary for every function of the organization to be immediately updated otherwise, it can cause loss of proper information and important time. Redundancy can cause vital information to be repeated and cause inconsistency in the separate functions (Elbanna, n.d.).

 These days, ERPs are everywhere. It is no more a simple desktop software. It is made up of mobiles, the cloud, social ERPs, and others. Most people can now access the ERP of their organization from the comfort of their homes. This allows business functioning throughout the day, allowing people to be more productive and play a part in the success of the business. With so many methods through which ERP can be implemented, it is no wonder that these days, organizations are highly dependent on ERPs for day to day functioning. ERPs provide the tools to integrate everything related to that particular organization.

 In the days before ERPs, the records would be stored separately which would give rise to inconsistencies and in the end cause inconvenience for the organization. Each department would have its own mechanisms for handling the data which would cost the organization more money, resources, and an increased chance of errors. These were the reasons that gave rise to the need for having such a structure that would make the task easier for the user. The data among different people would be shared on demand of that particular person.

*The Benefit of ERP to the Organization*

ERP has provided means by which different functions can be combined through data and then work together. Some of the departments that are integrated include HR, marketing, finance, etc. These departments are the core of business development and these require an immediate flow of information among them. Some of these examples can be:

* HR-Finance: HR is responsible for keeping track of human resources. The information regarding each and every employee, new hirings, etc are the core duties of the HR department. ERPs allow the users to keep track of all of these units of information and store them efficiently. The finance department, on the other hand, is responsible for keeping track of the accounts of the overall organization. The ERPs finance module may help the finance department in tracking all the numeric information. These two mentioned departments have to communicate together in order to fill in the gap that might be present. The employee data contains personal information as well as the financial information related to them. This allows the two departments to combine their efforts and cause ease of data access among all the concerned personnel.
* Finance-Marketing: The marketing department is responsible for developing marketing strategies for the company’s products and services. The ERP stores the data regarding the marketing strategies and stores them in the database. The two departments need to work together to make sure that the strategies designed are feasible enough to help the company rise in their profits. ERP provides the necessary tools.
* Business intelligence-Marketing: The Business Intelligence (BI) department is responsible for creating new ideas that would result in the better for the organization. These ideas are then handed over to the marketing department to implement. The ERP provides the necessary features to coordinate the activities of both of these departments. This coordination results in an increase in the overall profit of the organization.

Above are a few examples of how coordination among different departments occur when these are equipped with the necessary components of the ERP. All the departments are able to handle their own tasks as well as get the latest data from other departments which would allow for much better performance and efficiency.

**ERP Architectures**

The ERPs have different architectures that are implemented according to the need of the organization. The different types of ERP architectures are:

* 3 tier architecture.
* 2 tier architecture.
* 1 tier architecture.

*Three Tier Architecture*

 As the name suggests, the three tier architecture consists of three layers. The client tier, the business logic tier, database tier. The client tier is mainly composed of client computers. These are the computers that are responsible for the communication between the users with the ERP interface. The three layer architecture is the upscale version of the client-server model. The client and databases do not directly communicate with each other. Instead, a layer called the business logic layer is introduced in the middle (Habadi, et al., 2017). The clients communicate to the databases through the business logic. Some of the benefits of the 3 tier architecture are

* The three layer architecture keeps the layers separate from one another which results in an increase in efficiency. Each and every layer is responsible for its own functioning thereby increasing the efficiency of the layers.
* The three tier architecture also makes the ERP more flexible. If a change is required, it can be easily accommodated. A change in one layer may not be reflected in the other. So the overall cost is reduced.

With all the benefits of this architecture, there are some drawbacks as well

* The layered architecture makes it much more complex. There are many logics to be implemented therefore it gets more complex and costly to update. It might not be the best suited for smaller organizations as these organizations have basic features and limited resources.
* Due to the complexity, maintenance becomes more costly. A lot of effort goes into updating such systems which increases the overall cost of handling and updating them.

*Two Tier Architecture*

 The two tier architecture is the traditional model which is composed of two layers. The client layer is responsible for communicating with the ERP software through the user-interface. The second layer is the database layer which stores the entire data in a centralized database. Some advantages of the 2 tier architecture are:

* Fairly easier to implement. It is based on the traditional model of client-server which is utilized almost everywhere in some form or another. Thus the complexity is decreased and it is easily understood.
* The modification of features according to the needs is relatively easy. When there is a need for new features to be added, the necessary layer is changed without affecting the other one.
* Since the client computers connect directly to the servers on which the database exists, the communication mode becomes very fast. As a result, time is saved and efficiency is overall improved.

With all its advantages, there are few disadvantages as well

* Since the 2 tier architecture is not optimal, increasing the number of users would result in performance degradation. Since all the client computers are communicating directly with the server, it results in queued up requests and slower response time.
* The two tier architecture does not provide good value for money as compared to the 3 tier architecture.

*One Tier Architecture*

 The 1 tier architecture basically consists of a combination of client computers and file servers. There is no layering involved and every computer is of the same status. All the software and databases are kept on a single unit. There is no division among the clients and databases. The 1 tier architecture has the following advantages:

* No need for complex implementation of the architecture. Every client computer performs its own functions and saves its own data. There is no need to fetch the data.
* 1 tier architecture is cost-effective as it is not difficult to implement.

The drawbacks of the 1 tier architecture are:

* The update of the system is difficult since each computer would have to be updated in order to complete the process.
* Having data stored on separate computers can result in redundancy among the departments and errors in the final outputs.
* It is more susceptible to data loss as the corruption of a file on a single computer can destroy the whole data.
* The efficiency is decreased thus slowing down the tasks of the organization.

 Above are the three mentioned architectures of the ERP solutions. There are other architectures as well as the Web architecture which is used when using online ERP services. The web architecture is the same as the three-layer architecture with subtle changes to accommodate for the online world.

There is no fixed answer to what kind of architecture the company might employ. The newer ones like the three-tier are more expensive as compared to others and can be managed by larger organizations. But the benefits and the total overall profit of the company is increased. The 1 tier architecture may be deployed in small organizati9ons but as a result, they put their assets at risk. Also, the business processes are put in danger and the efficiency of tasks is decreased. But this might be the only option possible for such a small organization. Every company has to perform a proper investigation regarding which architecture is best suited for their organization and can get the best out of.

 Finding the right setup is necessary. There might be cases where the company deploys the best architecture but in the end, the overall cost would be more than what they make. This would result in a huge loss to the company. There would be an immediate need to overhaul the entire system with the new architecture. Proper research is key. It leads to overall betterment of the company and increased profits.

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