Implementation of enterprise solution for a poultry management system

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Abstract. In today’s competitive world staying ahead with their competitors and to satisfy the customer is not an easy task. Henceforth Poultry farms are scanning for better approaches to improve industry activities. The key reason for this examination is to find an appropriate method of doing the things. Managing the production loss from small or large scale industries is a difficult task. Industry considered here carry out all the industry processes manually. Non standard documentation was followed throughout the operations hence they rely on manual data processing which lead to data redundancy and time wastage. Increase in the Lead time and the production process time which give on to decrease in productivity and increase in errors and theoretical errors. This causes a great loss to the company. Their main focus is to standardize the operations and to increase the efficiency of the overall all processes. The objective is to study the discovery and value proposition phase of a poultry firm to implement enterprise management system in functional modules. The rise in Cloud based ERP system, however, gives small and medium business to Enterprise level operators access this important business management software, unlocking new operations and tools that weren’t readily existing before. Cloud-based software allows operators to access their ERP systems through any web browser.

Keywords: Cloud computing; Enterprise Resource Planning; ERP Implementation; Poultry Management System; Hatchery Management; Breeding Farm Management;

1. INTRODUCTION

Enterprise resource planning is a database management system. These days Enterprises put resources into various perspectives, the evaluated Return on Invested capital can be figured through diminishing expense, amplify benefits and aiding in choice help. Over every single useful unit of the venture it permits the ERP System gathers, records, incorporates, oversees and conveys information and data. An ERP framework is the answer for unite the entire association as One. The result of executing ERP System could be as predominant quality, diminished chance to-showcase, and improved correspondences, supporting in dynamic, decreased lead times, higher profitability and brought down expenses [1]. Brought down expenses can help the venture to look into client care and increment deals, piece of the pie just as income. Present day ERP frameworks are set up for use over the web. It improved with online business probability and the ability for combination and coordinated effort with providers, accomplices, client entries, and better following of internal crude material and active last items to grow the appearance and control inside and outside the undertaking. Numerous undertakings
gauge the expense of an ERP venture as only the expense of the product permit. For all intents and purposes there are numerous issues to consider the assets of execution ERP framework, for instance, programming permit charges, equipment, usage administrations and upkeep expenses and preparing charges. The execution of ERP frameworks is a costly procedure which increments with the undertaking size.

Combination of all the utilitarian units of an endeavor in a best manner is the primary focal point of an ERP device. As per [1] ERP characterized as an exhaustive programming bundled that looks to assemble the whole scope of a business’ exercises in order to introduce a careful assessment of the business from a solitary data and IT design. In [2] ERP is a key part of a framework that gives an outcome to the business. The firm considered here is a Poultry firm located in Hubballi. Established in 1972 with small flock of 100 poultry birds and expanded with a trading of Day Old Chicks (DOC). Now they are operating in and around Hubballi & Dharwad with clients in all over the Karnataka. Figure 1 shows the cause and effect diagram of a manual poultry process. The main purpose of this chart is to identify the cause of the problem.

![Figure 1. Cause and Effect diagram of manual poultry process](image)

### 1.1 Poultry Farm Management System

In India today, the agrarian part is the fastest rising area of Indian poultry industry. As the creation of rural harvests has been increasing at a pace of 1.5 to 2% per annum, while the creation of eggs and ovens has been increasing at a pace of 8 to 10% per annum [3]. Today India stands fifth for the world's biggest egg maker and the eighteenth biggest maker of grills. "Poultry Farm Management System" is regularly an assortment of information the board capacities that help poultry ranchers, all the more effectively run their homestead. Also, it is a window based application for keeping up and the board of the poultry ranch. Poultry cultivating is additionally a sort of industry for assembling meat and egg [4]. Poultry is a very cost sensitive industry, it is very important to have a good Poultry farming tool for the organization. Poultry Management System includes the following modules as shown in figure 2. And essentially this study focuses on two modules which are highlighted as shown in figure below, i.e. Breeder management system and Hatchery management system.
1.2 Breeder management system
The firm thought to be here has 3 breeding farm areas and 11 farms. The reproducing farm has 4 breeder flocks with 40,000 parent birds are put in these areas and delivering 30,000 eggs/day i.e. 10,950,000 hatching eggs a year, under great administrative practices. The farms are found spots to guarantee that they can’t get any contamination. At each phase of life dependent on ordinary veterinary prerequisites the birds are taken care of with supplements. The breeder eggs are mindfully gathered and cleaned. Furthermore, sent to the grading station, when they are arranged by size and class to get great quality chicks or broilers. Further, these evaluated hatching eggs experience a fumigation procedure. To tidy up the surface microscopic organisms before going into cold room, at that point to the incubator. The poultry has 4 batches. Furthermore, each bunch gives 20,00,000 eggs and 80,00,000 eggs for every annum, to deliver quality rich bring forth eggs the breeders are kept on a prominent administration arrangement of lighting, taking care of and bio security guidelines.

1.3 Hatchery management system
At the Hatchery, 1,12,000 chicks are brought forth in sterile environmental factors and reviewed for the best survivability at the reconciliation cultivates each week. The Hatchery has an ability to bring forth 5 lakhs chicks for each month for example 16000 chicks/day. Before the eggs are set in the hatchery, they are re-evaluated for surfaced defilement and splits. For 21 days, the temperature and dampness is checked each hour. With the goal that the undeveloped organism hatches into a decent quality chick. On the twelfth day, the eggs are ignored a brilliant candling light, which makes the inner substance of the egg obvious, and can decide whether the egg is rich or barren. Deficient eggs, Leaking eggs and reject are evacuated by the Candler. The chicks are reviewed, immunized against viral ailments and kept in plate, which are fixed with paper cuttings for the solace of the chicks before they are moved to the oven Farms in vehicles implied for chick transportation. The business considered here produces 60 lakhs chicks a year under rigid purification and sanitation modified to deliver chicks of good quality.

1.4 Cloud Computing
Cloud computing is a confident pattern of registering which left the enthusiasm for the scholastic explores and just as in the product business. It is a registering situation which conveys convenience, versatility, and adaptability of PC consoles at an alternate degree of idea with low running expense. Distributed computing can be characterized as a registering procedure to give processing as the
viability to meet the regular wants of the general business network. Cloud computing alludes to the applications, the equipment and programming conveyed as administrations over the Internet [5]. The cloud computing administrations think of three models as shown in figure 3 [6], Software as a Service (SaaS), Infrastructure as a Service (IaaS), and Platform as a Service (PaaS). The end client or business is focused by the Software as a Service (SaaS). It concerns the conveyance of a product application over the web to different clients. Cloud ERP frameworks fit in to this class and our work will be packed in this classification. Stage as a Service (PaaS) is the conveyance of middleware which convey apparatuses, Platform as a Service focuses on the product engineers, which permits them to construct SaaS application. The conveyance of processing power equipment and programming focused towards overseers is Infrastructure as a Service (IaaS). The venture narrows redesigns its use as per the development of its business.

![Figure 3. Cloud Service Models](image)

1.5 **Cloud ERP**

Cloud ERP arrangements are given by approach of the Saas model. Cloud-based ERP frameworks were offered by the numerous ERP frameworks in the market [7]. At the point when the framework is affected by the element of distributed computing ERP framework considered as a cloud-based. The Cloud based ERP framework ought to be gotten to by the method of client program over the web without introducing or arranging the framework at the customer side.

2. **LITERATURE REVIEW**

Goel S. et al. examines the bits of knowledge into the idea of distributed computing sway on ERP executions and talks about different issues identified with this. Additionally, they thought of rules with respect to the utilization of distributed computing innovation in the ERP usage of Higher Technical Education establishments [8]. Schniederjans Dara and Yadav Surya presents a calculated model that characterizes basic achievement variables to ERP usage sorted out with the innovation, association and condition system [9]. Joubert J. C. N. talks about assurance strategy for valuation that is generally suitable and dependable for the valuation of an oven ranch [10]. Al-Mudimigh An, et al. proposes an integrative system for ERP usage dependent on a broad audit of the variables and the basic components that add to accomplishment with regards to ERP execution [11]. Rodic Vesna, et al. introduced the ecological effect of poultry creation and the distinctions in this regard between the diverse creation frameworks [12]. Elragal Ahmed gives a structure to examination between the usage of ERP frameworks in-house versus the in-cloud executions [13]. Saini S L, et al. examined the current issues of the distributed computing answers for the Enterprise asset frameworks in the ventures. They examined improvement of Low expense ERP Solution to Indian ventures on Mobile utilizing most recent advancements, for example, Mobile registering, SaaS, Cloud Computing and so on [14]. Eduardo Guilherme Satolo et al. evaluate the Lean Production System in a laying poultry farm [15]. By referring to various papers, it is observed that the considered poultry industry objectives are
challenging to increase the performance, reduce losses, making effective processes and operations to meet customer need with fair amount of profits in almost volatile market. The papers include poultry operations management, poultry skills and practices, works on environmental aspects which helps to drive profits and reduce planning stresses. Due to the facts that the poultry operations are livestock management and control the quality is predominantly depends more on the rearing skills and care of the livestock.

3. DISCOVERY PHASE

The ERP discovery phase is necessary and should be one of your first activities to assess your business needs and the key initiative to start such a strategically important project. Without an appropriate comprehension of where you are today, it will be hard to get to where you need to go. Disclosure characterizes your present business forms (with no guarantees). Seeing how your business works today will assist with recognizing any holes at an early stage. The definition for discovery phase differs from consultant view & vendor view. This phase is a critical for vendors and consultants. The implementation team from vendors is responsible for the phase. Discovery phase consists of finding gaps, bottlenecks, pain-points, revenues. These gaps would then be able to be suited by changing the procedure or arranging the application in an alternate way.

4. NEED ASSESSMENT

The Needs Assessment section assist you to recognize end user's requirements, initiatives, and performance of what they carry out, how they carry out, and why. It is an approach of systematically collecting and analysing information so as to identify who is at risk, why, and what can be made about it. The evaluation should be made in close relevance with clearance organisations where these exist. While this method involves a considerable investing of time and effort, it is crucial to ensuring that your ERP investment appropriately addresses the difficulties that your organization is currently experiencing. It is a part of discovery phase. Our main need is to improvise the manual hatchery and breeder management process to atomization.

5. VALUE PROPOSITION PHASE

A value proposition is an assurance of the value stated by an ERP vendor that outlines how the benefit of the ERP product will be delivered, experienced, and acquired. Essentially, a value proposition describes what forms the company's product or service attractive, why a customer should procure it, and how the value of the product or service is differentiated from similar offerings.

This is usually proposed by the vendor to the firm or to the customer. These include pain points and value for the solutions. These involves there amount, implementation time, the features, addressing their objectives, addressing their needs, addressing their requirements, and there are certain key performance indicators that is necessary to be highlighted, especially for the banking institutions. Everything is done before implementation and it is done in the value proposition phase. These are the modules and features SAP based Poultry OS is offering. Modules such as breeders, broilers, Feed mill, sales, accounts, purchase, administration, hatchery.

6. BREEDER AND HATCHERY MODULE FEATURES

Flock Placement Planning, Chicks Procurement Management, Standard Schedules for Feed, Vaccine etc, Flock Details, Shed Details, Daily Transactions for flock, Feed consumption, Mortality etc. - Mobile, Egg collection entries - Mobile, Flock performance dashboards, Hen house production and standards, Breeder MIS and registers.

Manage Hatchery Lifecycle, Machine utilization, Equipment maintenance, Hatch performance, Analyze flock performance, Egg placement planning, Manage cold room inventory, Chicks sales and delivery.

Value proposition phase also includes commercial aspects of the product. In commercial aspect we talk about monitory requirements, monitory affects of the project. How it is going to affect the company, customer, vendor as well as consultant. The commercial aspects include the prices for the
product, licenses and implementation charges. Means of payments, service charges, training charges, 
annual maintenance contract charges, if moving for the SaaS model of the ERP solution then data 
protection policies are discussed along with the agreements; rental packages are also discussed in case 
of the cloud solutions.

7. SELECTION AND ASSESSMENT OF TOOLS

While initiating the tool in the organization it must match the requirement within the organization, and 
resolve that need in a way that is both effective and efficient. The tool should assist in building the 
strengths of the organization and should also address its weaknesses. There are several poultry 
management tools are there in the market. In order to select this particular software or this particular 
tool the selection criteria should be purely on the basis of value outcome. And there must be some 
practicality that is different for different products. The higher the value the best the product is 
considered. The measurement for value outcome depends upon various factors: The reputation of the 
product, Ease of use, Technology, Accounts rate of return (ARR), Time to implement, Cost of 
Implementation etc. The faster the implementation and faster the recognition, understanding the 
system the better it is.

Based on the following criteria the ERP tools were evaluated.

- **Core Business Modules:** While running a Poultry firm, there are several challenges that you 
can come across like difficulty in, equipment maintenance, document management, manual 
data collection, etc. But what if there is software that automates and assists to overcome these 
challenges and improve the productivity of the company? Well, a full-fledged poultry ERP 
tool can help employees to get over the daily challenges faced.

- **System Integration:** The industry considered has five different departments. To improve 
productivity and quality of their operations the purpose for organizations is to use system 
integration. To accelerate information flows and minimize operational costs for the 
organization, the aim is to get the organizations various IT systems to “talk to each other” 
through the integration.

- **Web Based Operability:** Because of the current scenario the technology has developed 
gradually. Most of them go for a web based operability to remotely access the information 
whenever they want. Below figure shows the comparison chart of different ERP systems.

| ERP System | Poloxy | Poultry OS | Net Suite | Sap B1 |
|------------|--------|------------|-----------|--------|
| Web Based  | ✓      | ✓          | ✓         | ✓      |
| System Integration | ×      | ✓          | ✓         | ✓      |
| Core Business Modules | ✓      | ✓          | ×          | ×      |
| Rating     | 2      | 1          | 3         | 4      |
| Cost       | ₹4,50,000 | ₹1,50,000 | ₹8,50,000 | ₹13,00,000 |

Poloxy, Poultry OS, Net suite, SAP B1 are the products. Core criteria’s (web based, system 
integration, core business modules) and have given ranking based on our survey in our management. 
As mentioned in the table 1 and in figure 4, the products with core criteria’s the systems are offering. 
Poloxy offers web based, core business modules and they don’t have system integration. And it cost 
around Rs.4,50,000. Net suite doesn’t offer the core business modules because it is not specifically 
built for poultry business. SAP B1 is also a best tool which cost around Rs.13,00,000. Poultry OS 
offers all the features and it costs less i.e. Rs.1,50,000. While it is offering all the features and 
inexpensive then why go for other tool. So based on these comparisons the company manage to go for 
a Poultry OS.
The cost implementation chart shown in figure 5 describes how the firm preferred poultry OS solution rather than Net suite, Poloxy, SAP B1. And there is no problem in Net suite and SAP B1. The firm considered here wants to develop it for Poultry OS which is less costly.

8. PROJECT IMPLEMENTATION

It is the general approach that outlines the mode in which the project is undertaken and recognize the methods used in it. The methodology of the work is focused on the ERP implementation system which means from initial state the methodology becomes ERP implementation lifecycle. The flow of the project is shown in figure 6. Here two methodologies are incorporated. One is the entire ERP project implementation methodology and the other is module wise approach methodology for effective implementation.
Here in figure 7, the customer as well as vendor involves with consultant. Here firstly module selection is done. We have these much of departments, theses much of assessments and based on the assessments these modules are going to help us. Process evaluation is done. Consultants and vendors
are going to evaluate the process. This is an AS-IS process. And they are going to implement it in the test case scenarios. And they validate the process to check like how it was before and how it is after the implementation. Configure the modules later, so this is actually done in customer sight as well as in vendor sight. So for vendor sight they are testing it. For customer sight they are implementing it. Implementation team training consists of members from vendors, customers as well as consultants. Then the actual testing on product is done. End users are trained. Here the customers are going to be trained by vendors and consultants.

8.1 Project Schedule
Project scheduling is a tool to converse what tasks require to get done and which organizational resources will be allocated to complete those tasks in what timeframe. In short, start dates and finish dates are scheduled and milestones that must be met for the project to be completed on time. In order to go for the implementation of the project one should have a good project schedule, we can call it as a project planning or project initiation. As a method to evenly distribute work among team members, project schedule is often used in conjunction with a Work Breakdown Structure (WBS).

8.2 Data Collection
The three main categories of data have been collected i.e. organizational data, master data, and transactional data. Closing balances of item, ledgers, business partners, pricing and taxation has been done as shown in figure 8.

8.3 Pilot Run
Presenting new tool for the most part requires a pilot execution program to test how existing procedures will be performed on the new device, and to guarantee that the anticipated upgrades will be figured it out. Advantages of pilots incorporate business process improvement, risk reduction and in-depth learning of the device. After collecting the data it should be been validated. And these data should be updated in the system by the implementation team it is called as data migration. Once again re-validate it, to check whether the system is producing correct data or not. Demo transactions are also run in the new system. The output or the results are checked later.
9. CONCLUSION

There are numerous approaches to automate the business forms; the inquiry comes how to coordinate them appropriately. The secluded framework has gotten one of the reasonable answers for defend different every day undertakings and offer a brought together processor for a lot of information. Notwithstanding the uncommon usefulness gave by all ERP modules independently, organizations significantly advantage from their nonstop collaboration and correspondence. It is a drawn out methodology that legitimizes the endeavours of its execution.

Poultry OS is a superior example of a Poultry ERP solution which enables you to control your business resources and financials. Its license model is user and role based. It's hosted on leading secure cloud environments and has daily backup routines setup. It has all integrated modules and also has built in analytics. Poultry OS also has a convenient to use mobile app which can be used from anywhere. Poultry OS can be used by single farmers as well. Enterprises that need to get high creation from breeder/Layer group; Breeder Management System is intended for those businesses. To record all the exchanges and exercises associated with a reproducer ranch, these arrangements incorporate Flock Performance, Purchases, Sales, Expenses, Feed Formulation, and Feed Production and book-keeping this module is structured. On daily basis Breeder Management System records and monitors flock performance. It provides accurate livestock valuation. Using this module, user can identify batch-wise profit and loss. All egg collection vs. sale data will be available at fingertip. User will get accurate per bird and per egg production cost. User can do various comparisons like breed-wise performance and batch-wise performance. Owners can view accurate balance sheet and profit & loss statements.

Hatchery Management System records and monitors machine-wise temperature and humidity details with the help of mobile applications. One can easily check machine utilization and its performance. This system calculates party-wise performance, hatch details, product cost, etc. Reports are easily generated. Most of the manual works are reduced, All poultry operations covered in one application, Ready to use from day one with breed wise master data, Can be used from anywhere, Every stake holder are covered, Notifications and alerts, IOT enabled poultry ERP, Economic in price, Ease of use, User friendly. Poultry OS takes care of all operational activities allowing you to focus on core business ideas. You should be able to utilize your ERP 100% for your benefits and increase the bottom line.

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