

# GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES

## ECONOMIC IMPORTANCE OF ANIMALS HUSBANDRY MANAGEMENT SYSTEM THROUGH THE CLOUD COMPUTING

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### ABSTRACT

The real India lives in its villages and smaller towns and therein lies the future of India. Rural India has been ignored for more than 60 years and the cloud technology will bring the change that is required to bridge the divide rural India and Urban India, and will improve the Indian rural economy. The principal source of income of India is agriculture. So the development of the ICT is basically focused on the Indian agriculture sector. Cloud computing is a general term used to describe a new class of network based computing that take place over the internet. These platform hide the complexity and details of underlying infrastructure from users and applications by providing very simple graphical interface. with this it is true that there is a economic importance of working animals. By the animal husbandry we can increase the economic condition of our nation. In these paper we will see that how the cloud computing provides the batter or efficient services of animal husbandry.

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### I. INTRODUCTION

The Cloud computing is a general term used to describe a new class of network based computing that take place over the internet. These platform hide the complexity and details of underlying infrastructure from users and applications by providing very simple graphical interface.[1] A key differentiating element of a successful information technology (IT) is its ability to become a true, valuable, and economical contributor to cyber infrastructure. “Cloud” computing embraces cyber infrastructure, and builds upon decades of research in virtualization, distributed computing, “grid computing”, utility computing, and, more recently, networking, web and software services. It implies a service oriented architecture, reduced information technology overhead for the end-user, greater flexibility, reduced total cost of ownership, on demand services and many other things. “Cloud computing” is the next natural step in the evolution of on-demand information technology services and products. To a large extent, cloud computing will be based on virtualized resources.[2]

### II. WHAT IS CLOUD COMPUTING

Cloud computing is a tool to make IT related services available in a simplified manner hiding the complexities of those services, without really knowing and getting involved in the technicalities of how and what to do in providing the needed services. The term “cloud computing” is given to this approach because the users do not really need to know who is providing those services and users consider that the services are rendered by the cloud – an unknown to them. The charm of cloud computing is that the services may be availed whenever and wherever needed. It also reduces the cost of availing those services drastically. At the same time, it offers involvement of very less manpower and maintenance of those services. It also makes users free from certain concerns such as buying software, maintaining them up to date, maintenance of data etc. All these issues would be taken care of by Cloud providers. Cloud computing offers various models based on user requirement.

#### Characteristics of the Cloud:

Cloud computing is more than a technology which provides a platform for hosting applications as service, storage services and development environment for IT developers. It is a dynamic provisioning of IT tools and capabilities from third party over an established network. It is a form of remote computer with the help of web based tools can access and use through a web browser as it was locally available on end user’s computer. Cloud computing has many distinct characteristics which makes this technology quite different from. Conventional networking and grid concept. The distinct characteristics have been described here (White and Magnate, 2010) [3] [4][5]

***On-demand self-service***

A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service’s provider. [3]

***Broad network access***

Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g. Mobile phones, Laptops and PDAs {Personal Digital Assistants}). [3]

***Resource pooling***

The world IT industry has gathered huge amount of data having restricted accessibility to the real users. Large companies having those data centres can easily sale these data and computing power on rent basis to other organizations and get profit out of it and also make the same resources available needed for running data centre (like power) utilized properly. Companies having large data centres have already deployed the resources and to provide cloud services they would need very little investment (Ghosh, 2010). The provider’s computing resources are pooled to serve multiple consumers using a multitenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g. country, state or datacenter). Examples of resources include storage, processing, memory, network bandwidth, and virtual machines. [3]

***Rapid elasticity and scalability***

Capabilities can be rapidly and elastically provisioned, in some cases automatically, to quickly scale up and rapidly released to quickly scale down. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time. Scalability is provided dynamically to the users. Users get as much resources as they need. [3]

***Measured Service***

Cloud systems automatically control and optimize resource use by leveraging a metering capability at some level of abstraction appropriate to the type of service (e.g. Storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported providing transparency for both the provider and consumer of the utilized service. Cloud users can use the resources on demand basis and pay as much as they use. So the users can plan well for reducing their usage to minimize their expenditure. [3]

***Most fitting and handy:***

Cloud users need not to take care about the hardware and software they use and also they don't have to be worried about maintenance. The users are no longer tied to someone traditional system. Virtualization technology gives the illusion to the users that they are having all the resources available.[2]

**III. ANIMAL HUSBANDARY**

The schemes of the Animal Husbandry Department have been formulated to improve the Livestock Production to fight protein hunger and to improve nutritional standards of human populace and also produce the main objectives of the Veterinary and Animal Husbandry Services including Dairying

1. To augment Production of milk, meat, egg and other animal bi-products.
2. To make available the high quality and productive livestock and poultry breeds for multiplication and supply to the needy farmers of the state by providing advanced breeding services for up gradation of indigenous cattle and buffaloes.
3. Delivery of necessary livestock health care through timely immunization against total diseases, proper diagnosis and rational treatment for optimization of livestock production.

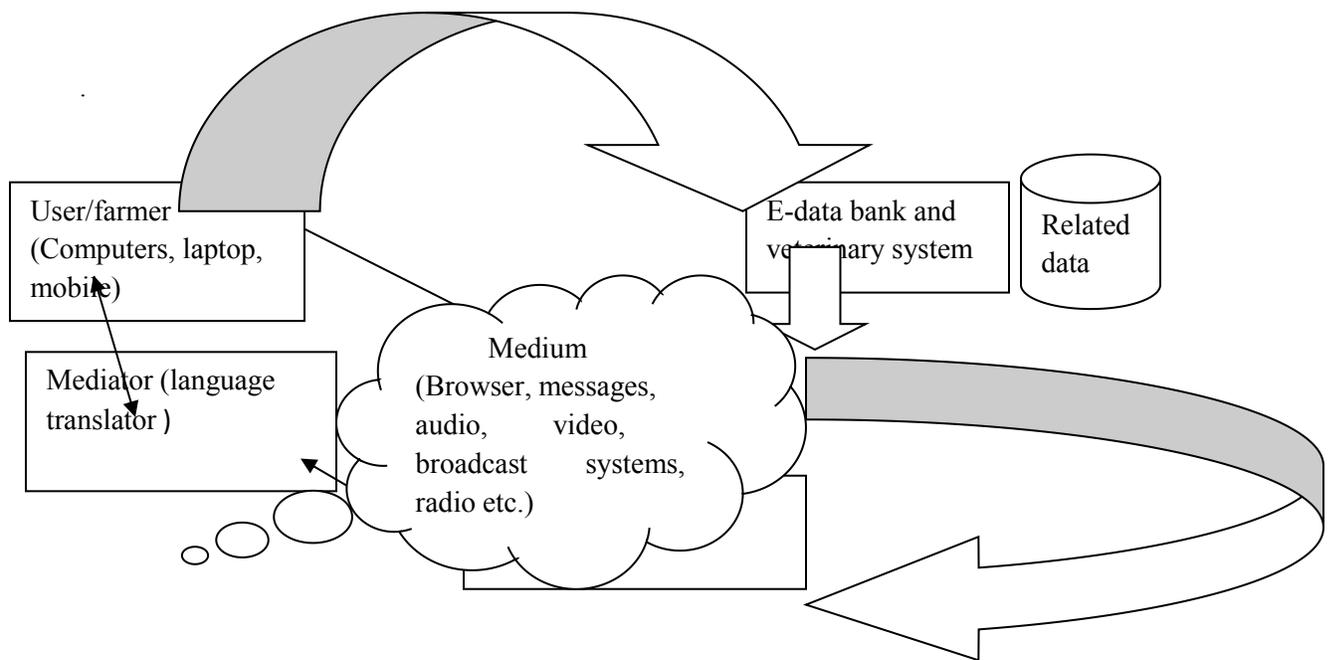
4. To educate people by imparting training on modern and scientific methods of livestock farming and extension activities.
5. To provide animal power for farming, better land use pattern the land which is not suited for arable cropping should be brought under fodder production.
6. Creation of thousands of Self-employment opportunities throughout the year by adopting, animal husbandry on large scale for sustainable income of the rural masses of the state.

**IV. DESCRIPTION OF THE PRAPOSED MODEL:-**

1. USER
2. E-data bank
3. Veterinary system
4. Medium
  - Natural language/mediator

5.Experts

PRAPOSED MODEL:-



**Fig:- Proposed model of husbandry management system through cloud computing.**

**Detail description:-**

**1. USER:-**

For joining the cloud network users require two things which are

- **Communication:** Except some countries majority of urban population is illiterate, who are in general farmers? Therefore, the system will provide services in their national language, which is dzongkha. The system will also have audio-visual facilities to disseminate information.
- **Communication Devices:** The mobile services in Bhutan have covered almost all parts of the country and almost each family has access to it. Though majority of the local farmers have never heard of ICT, they are used to with mobile services. Thus, the system incorporates mobile services and helps the farmers in acquiring information from e-data bank from anywhere, at any time, through mobile phones.

## 2. E-data bank:-

It is a central data bank and it can be used to store all the animal husbandry related information in a centralized cloud, which will be available to all the users at anytime, anywhere. The main concept behind having an e-data bank is to disseminate vital information to the local farmers in decision making. In order to do so, the e-data bank includes the following databases:

- **related information:** It captures information related to all the working animals grown in recent past in different regions. This will help the local farmers of different parts of the nation in animals related decision making.
- **Growth progress monitoring:** It monitors and captures data on animals growth in different regions on a regular interval. This will be specifically useful in comparing the animals growth region wise and also comparing it with past data will bring a clearer picture.
- **Farmers Data:** It captures the region wise farmer related data, to monitor and study the involvement of local farmers in Indian agricultural sector. It will help the policy makers in designing Indian agricultural policies. This will also help in identifying the core Indian agricultural areas, so that the policy makers can take decision on encouraging and promoting agriculture. This may help in overcoming problems such as unemployment and rural-urban migration.
- **veterinary Expert Consultation:** It provides solutions to common problems that farmers frequently experience. It can also have a provision to post unattended problems seeking for solutions from the experts. It will also have a bundle of frequently asked questions (FAQs) and their answers to make the response reach the farmers faster.[6]

## 3. Veterinary System:

This part of the system can be used to monitor the overall functionalities of the system and render the needed services. The system will have online service facilities available to all the users, from any part of the country and at any time. In order to render these services, the veterinary system may have the following services:

- **Information about veterinary:** It can provide an up to date data of the current demand and supply information of veterinary in different parts of the country. It helps the farmers in deciding on selection of the animals. It also provides room to go for a comparative analysis of the demand and supply chain.
- **E-Knowledge sharing:** The system also keeps provision to have online communication with the Experts/consultants and attend online training programs using the Community Service Centers (CSC) as the local information bases. The system is not restricted to only local information; cloud veterinary system is a global ICT approach. The system, therefore, will collect and disseminate agriculture related global information to the local farmers. This will be specifically useful if they need information that is not locally available or not yet implemented in Bhutan. Also farmers can be made aware of recent Veterinary related concepts, such as “Organic cultivation” using this global ICT approach.
- **Conducting Research:** It will help the national and international researchers to extract Indian Husbandry data directly from the e-data bank and analyze them in order to contribute to the Indian agricultural sector of the nation. The research findings will be kept in the e-data bank and will be available to all its stake holders.

## 4. Medium:

The model makes the communication between different users much faster, easier and cheaper. Also the communication will be secured. Medium through which the users can connect with the specialist

i.e browsers, audio, video, messages, broadcast systems like radio television etc. For the rural farmer's video clips in natural language is the best way to give the information by the specialist. Natural language in the sense that there is a mediator or language translator which can solve the problem of communication skill. By these medium a user can send a picture of any animal who is ill, to the specialist and can get proper treatment for the animals.

**5. Experts (advise consultation):**

It provides solutions to common problems that farmers frequently experience. It can also have a provision to post unattended problems seeking for solutions from the Experts. It will also have a bundle of frequently asked questions (FAQs) and their answers to make the response reach the farmers faster.

**IV. BENEFITS OF THE PROPOSED MODEL**

Following are the main advantages of using the suggested model:

- **Data management:** The data will be managed by the service provider, a team of professionals. That guarantees a better and organized management of data.
- **Data readiness:** The model provides data from the e-data bank databases to its entire stakeholder at any time and at any location.
- **Rural-urban migration:** A major problem of Bhutan is rural-urban migration. It can be reduced as the model provides its services all over the country at any time no matter how remote the place is. This will also help in controlling unemployment problem in the country.
- **Motivation:** It will motivate the farmers and researchers to get involved more and more into agriculture as any communication will be result oriented. That will result in overall development of this sector in the nation.
- **Security:** It provides an enhanced security as the resources will be stored in cloud and will be maintained centrally by the service providers. Thus, it is not a cause of concern for its users.
- **Reduction of technical issues:** It cuts short the man power, maintenance and infrastructure requirement drastically, as it will be provided by the service providers.
- **Overall economy:** Implementation of the suggested model will help in uplifting the Indian agricultural sector of the country. That will boost the overall development of the economy. It is due to the mass involvement of different stakeholders, as the system will monitor and deliver progress report whenever and wherever needed.

**V. CONCLUSION**

By implementing this model defiantly improve the economic factors. The working animals are performing important role in economic value. The husbandry management system through the cloud computing can provide economical profit. An effective implementation of this model will encourage other sectors also, which will lead to optimal benefit of shifting towards cloud. This will definitely have a positive impact in the overall economic development of the nation. Above all, cloud computing is a newly introduced concept and most of the developing nations are not readily willing to accept and implement it. Therefore, it needs a mass awareness and promotion among the prime stakeholders to acquire the full Potential of it and have a well established information base for the nation.

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