Big and Meta Data Management for U-Agriculture Mobile Services

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Abstract — **big data Current ecosystem lack a principled approach to meta data management .this impedes large organizations' ability to share data and data preparation and analysis code to integrate data.This paper is communicates about big data and meta data .big data is a data which is in the from of text , audio , video etc. Meta data is data which describe data from other data. It gives detail information about data , where is comes from, and when it was taken etc. This paper tells about big data, metadata and their management associated to u-agriculture mobile services . this paper reviews B&M data and their management. Also presents relationship between big data and Metadata and challenges. And also types of sensors, techniques, technologies, applications, and advantages of various types of sensors for u-agriculture mobile services in their decision making .this is very unique and strong topic for research, this paper review big data and meta data management challenges and different techniques to over come the challenges,**
Key Words — **About four key words or phrases in alphabetical order, separated by commas.**

I. INTRODUCTION

In agricultural environments, knowledge and experience of skillful agricultural experts, who may are farmers, researchers, market analysts, distribution specialists, and so on, have been more important roles than ever. Especially, for farmers newly trying to cultivate a high value crops, the knowledge and the experience of experts for the crops will be very important factors for successful cultivation. So, for higher productivity and   better   quality,   the   valuable information has to be able to be supplied easily and quickly to a user in agricultural environments . Big data and its management holds are the crucial keys for farmers, but it's also a weapon that could be used against them. One of the most important technologies in agriculture nowadays is to create agriculture big data. Now-a-days data is creating by using field sensing technology is distributed widely and measured data are shared on cloud storage services .

Big Data Management
This is about two things – Big data and data management plus how these two work together to reach the goal. This is where data management disciplines, tools, and platforms are applied to the management of big data. Traditional data and

Meta Data Management
Metadata describe a data source, a particular collection of data (a file or a database or a table in a relational database or

a class in an object-oriented database), an instance of data (tuple in a relational database table, object instance in a class within an object-oriented database) or data associated with the values of an attribute within a domain, or the particular value of an attribute in one instance . Metadata also describes:
1. Data models.
2. Processes and software.
3. Overall processing system environment, a processing system, a process, a component of a process.
4. A suite of software, a program, a subroutine or program fragment, a specification.
5. An event system, an individual event, a constraint system and an individual constraint.
6. A process and /or event model.
7. People and their roles in any system or organization.
8. An organization, a department, individuals or individuals in a certain role and so many. Metadata are essential for refining queries so the latter return that what the user intends. It is also essential for understanding the structure of information, its quality and its relevance.

Metadata and Big Data Relationship:

The structure and meaning that metadata delivers, generates 'value' to big data. The importance of metadata is about understanding and utilizing information and behaviour within data infrastructures permits us to find and converge data, and to analyse its lifecycle and background. Metadata also brings similar information together and distinguishes dissimilar. In other words, convergence (creates and increases the value) and fragmentation (creates isolation by decreasing value).Not only 'value' but also gives meaning to 'variety' of data-Integration of this variety of data information and structure , relevance *etc.*

B&M Data Management Challenges:

Big data management's presents a number of challenges relating to its complexity :

☐ **Heterogeneity**: How to understand and use big data when it comes in an unstructured format such as text or video.

☐ **Timeliness**: How to capture the most important data and deliver that to the right people in real-time.

☐ **Scale**: How to store the data, and how we can analyze and understand it given its size and our computational capacity. There are numerous other challenges, from privacy and security to access and deployment is **Personal Privacy**, everyone one has to think about all the personal information that is stored and transmitted through Internet service providers, mobile services, medical and financial service organizations (e.g. banks, insurance and credit card agencies) [17]. 1. **Adoption**

Relevancy: How to make the data collected relevant and useful for the farmer you are targeting.

Collecting data where a farmer does not own his own sensory hardware, or where there aren't existing images or databases, will be another challenge. Some farmers might be relatively tech-savvy and want a system that is quite advanced, whereas others are really starting from scratch.

5. **Data privacy** that could have an impact on the progression of the industry. Without any current laws or regulations enforcing the data arrangement between farmers and data analytics providers, it is unclear how this will play out in the future.

B&M Data Management for U-Agriculture Mobile Services:

Ubiquity entrusted as one of the most key characteristic of mobile services. A small keyboard and a screen, the main obstruction to the acceptance of smart phones were replaced by a multifunctional touch screen. This easy-to-use electronic visual display allows users to directly interact with the device by using their fingers. This breakthrough in technology, along with advanced computing and connectivity capabilities, brought about the explosive worldwide growth of smart phone use .Mobile Communication Technology has quickly become the most familiar way of communicating data and services in today's world. They could furnish a lot of inexpensive ways for millions of people to access information previously unavailable to them. According to some reviews, the ubiquitous nature of mobile services may change the paradigm in Agriculture . The massive data and abundant applications call for mobile analysis, but also bring about a few challenges. As a whole, mobile data has unique characteristics, e.g., mobile sensing, moving flexibility, noise, and a large amount of redundancy. Big data raised as a key

role of the advances made in ubiquitous agriculture, where as to attain maximum yields: farmers and agriculture businesses are trying to use their resources in the very productive manner. So, in acknowledging the enormous advantages that access to big data analytics have and number of divergent agriculture big data technologies have turn out for farmers and their mobile service providers to utilize. Sensors on the hardware side are present in collecting data of heterogeneous formats. Sensors include.On software side: data collection, processing and analysis regularly with the aim of displaying rich vision to farmers in an accessible form. This software will use data from the hardware sources (sensors), either purchased by the farmer or by hardware businesses that the software service provider partnership with machinery manufacturers or data provided by farmers from third party data services or from public possessions such as local governments. Based on software, the data presentation and analysis differs. But now, most of the programs are available through computers, tablets, and smart phones and usually comprise of a dashboard of the various data sets which is customizable to whomever tracking.

Application

built-in Application: The word "data" is plural, not singular. The subscript for the permeability of vacuum μ_0 is zero, not a lowercase letter "o." The term for residual magnetization is "remanence"; the adjective is "remanent"; do not write "remnance" or "remnant." Use the word "micrometer" instead of "micron." A graph within a graph is an "inset," not an "insert." The word "alternatively" is preferred to the word "alternately" (unless you really mean something that alternates). Use the word "whereas" instead of "while" (unless you are referring to simultaneous events). Do not use the word "essen Mobile Sensors : Camera (Human participatory sensing)

Function : Takes Picture & Video

U-Agriculture Application : Image analysis. This sensing operation is done with the help of farmers or workers involvement. Using techniques like Image processing and Pattern matching techniques.

Advantage :

1. Detection of the pest or disease attack.
2. Current stage of a particular disease.
3. The disease severity from a particular farm

Mobile Sensor : GPS and Acceleration sensors

Function : GPS receiver

U-Agriculture Application : Position and clock. Captures data to detect various activities like sowing, irrigation, harvesting, bed making etc. get recorded in the database automatically and in real time.

Advantage : Helps to provide right farming practices to the farmers at the right time.

Mobile Sensors : Microphone sensor

Function : Recording/Detecting Voice
U-Agriculture Application : Sound and noise measurement for the detection of pest presence in the field.
Advantage : This helps farmers to take necessary measures in order to minimize the losses due to pest attack

External Sensors (Interfaced with mobiles)

Mobile sensors: Chemical or Gaseous Sensors
Function: Detection of gases & gas ingredients.
U-Agriculture Application: Measures the gaseous emissions from the agricultural fields like Ethylene emission occurs during different stages of plant growth like fruit ripening, flower pollination etc.
Advantages:
1. Number of gases are released in atmosphere might contributes to the global warming.
2. Detection of various stages of plant as well as plant disease. revise and resubmit them to the journal again.
Mobile sensors: Soil Moisture Sensors .
Function: Detection of moisture level,U-Agriculture Application: Communicate information about the level of moisture present at certain depths in the soil or ground.
Advantages: Precise control of water and other inputs like fertilizers that are applied by irrigation pivots.

B & M DATA MANAGEMENT FOR U-AGRICULTURE MOBILE SERVICES:

The main obstruction to the acceptance of smart phones where replace by a multifunctional touch screen. This easy-to-use electronic visual display allows user to directly interact with the device by using their fingers. Mobile communication technology has quickly become the most familiar way of communicating data services in today's world. According to some reviews, the nature of mobile services may change the paradigram in agriculture.

CONCLUSION

This paper has reviewed b&m data (big and metadata) related research in present world scenarios. This paper also adds types of sensors, technique's technologies, application, and advantages of various type of sensors for ubiquitous agriculture mobile services in their decision makings are tabulated. Also describe a relation between big data and meta data and their challenges. This paper presented agriculture for u-agriculture mobile services based on sensor-cloud infrastucture.

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