Abstract: Technological innovation and competition has forced some farms and granges to adopt supply chain mode to manage their supply, production and sales. The new integrated supply chain management systems, if utilized properly, can lead to higher quality products, enhanced productivity, reduced space, and ultimately increase logistics efficiency and flexibility. SCM is defined as the integration of key business processes from end user through original suppliers that provides products, services, and information and hence add value for customers and other stakeholders. In this paper, we proposed web based information shared on various web services using OWL. Web service is an internet-based software component that can shield all sorts of heterogeneous business applications on basis of Service-oriented Architecture standards. Web ontology language (OWL) has been used to make the information sharing system on various websites. In OWL, the URL is stored and called by means of RDF and the information is retrieved from various websites by means of web services. It is quite possible in agriculture marketing scenario that for a complete business process, an agricultural marketing activity can make the use of various existing business applications with loosely coupled and open computing environment.

Key words: Farmer, Order Management Subsystem, Wholesaler Management Subsystem, Transportation Management Subsystem, Warehouse Management Subsystem, Agri-Portal Website, Web Annotator Engine.

INTRODUCTION

Today, economic integration and globalization are not a choice, but a fact. Globalization and integration provide the great opportunities for the developing economies to access the regional and world market resource. Being an agricultural country, agricultural market of India has been involved in international economic and technological cooperation and competition.

The standardization of shared information is a process to make the information transfer from one system to another, which consists of its content and structure. In agricultural supply chain the shared information may involve data of commodities quantity and quality granges have adopted supply chain mode to manage their supply, production and sale with the help of government and wholesalers.

1. Existing System

[1] The user have to find information about the agriculture details such as order management, transport management, warehouse management separately, which leads to high time consumption and tedious, no single service can fulfill the business requirements; there should be a possibility to combine existing services to achieve long-running business interactions.


[3] The key to the management of the supply chain is to be able to establish mutually reliable and supportive relationship between the upper and lower stream of the supply chain.

[4] SCM is based on the integration of all activities that add value to customers starting from product design to delivery. In order to reduce the cost of production, companies have implemented the concept of SCM with a view to eliminate nonvalue-adding activities.

[5] The technology to compose Web services in appropriate time-frames has not kept pace with the rapid growth and volatility of available opportunities.
Web services may need to be composed as part of a short term partnership, and disbanded when the partnership is no longer profitable.

[6] WSDL is an XML format for describing network services as a set of endpoints operating on messages containing either document-oriented or procedure-oriented information.

2. Proposed System

In Proposed system, the supply chain information sharing system has implemented in web services using various websites. All the information about agriculture details will be presented to user in one single portal by using web services. The various websites shared the information based on web ontology language(OWL). In OWL, the URL is stored and called by means of RDF and the information is retrieved from various websites by means of web services.

The System hold that this kind of information sharing system can help the users view their interests visually in the client and the system can display what specify user’s interests in the platform.

2.1. Information Sharing System

Information sharing system is used to exchanges of data between a sender and receiver. These sharing system exchanges are implemented via dozens of open and proprietary protocols, message and file formats.

The primary information sharing design patterns are sharing information one-to-one, one-to-many, many-to-many, and many-to-one. Information sharing platforms will provide controlled vocabularies, data harmonization, data stewardship policies and guidelines, standards for uniform data as they relate to privacy, security, and data quality. There are six modules in agriculture product supply chain information sharing system. They are Farmer, Order Management Subsystem, wholesaler management Subsystem, Transportation Management Subsystem, Warehouse Management Subsystem and Portal website. All of the Subsystems and the Database Management System are integrated in the information sharing system.

2.2. Web Service

Web Service is defined by the W3C as a software system designed to support interoperable machine-to-machine interaction over a network. The W3C Web Service definition encompasses many different systems, in common usage the term refers to clients and servers that communicate using XML messages that follow the SOAP standard.

Web Services are defined as modular units of application logic which provide business functionality to other applications. The ability to efficiently and defectively select and integrate inter-organizational and heterogeneous services is an important step towards the development of business applications. Web service is used to globally share the information from various websites to portal website.

2.3. Farmer

In this module, the farmer details are provided by the admin. The admin has to store information about the farmer details and they can also update or delete the details of the farmer. The farmer can have login provision for viewing his/her product information. They can also able to change the password for their login.

2.4. Order Management Subsystem

Order management system can be used to help keep a record of agricultural products, means of agricultural production suppliers, contractors and retailers, and the purpose is to improve the willingness of operation in the future gradually. Currently, an electronic system developed to execute securities orders in an efficient and cost-effective manner.

Customers and retailers use OMSs when filling orders for various types of securities and are able to track the progress of each order throughout the system. This system facilitates entering of an order, whether via a web-site shopping cart or a data entry system (for orders received via phone and mail). Payment processing is done to check for validity or availability of funds. Once entered, valid orders are processed for warehouse fulfillment, such picking/packing/shipping.

Orders through electronic documents, there are two ways that are more often to be used. The first way is through Excel, Word or Email, from the order system the processor will upload the content into the agricultural supply chain information system. The other way is that the customers can input the data into agricultural products center on the order window of portal website, by the order system the processor will upload the order information to the information sharing system for sequential treatment.

2.5. Wholesaler Management Subsystem

Wholesaler has distributing the sale of goods or merchandise to retailers or commercial and other professional business users to other wholesalers and related subordinated services. In this module the admin have to collect all the details about the product including product id, name, minimum stock, maximum stock and product description.

2.6. Transportation Management Subsystem

Transportation Management Subsystem generally utilizes the GPS position system, GIS geographic information system and timely tracks the agricultural
the situation of products transportation and obtains the feedback information.

It integrates source, production, deliver, and return processes, along with other information encompasses important activities such as Purchasing, inventory flow scheduling and control, logistics - production coordination, transportation systems operation and infrastructure, customer service, order Fulfillment and distribution facilities management. The subsystem comprises of five function module: agricultural products transportation tasks generation, transportation fees settlement, transportation scheduling, transportation process management and inquiry, transportation resource management.

2.7. Warehouse Management Subsystem

Warehouse management system is primarily aims to control the movement and storage of materials within a warehouse and process the associated transactions, including shipping, receiving, etc. Warehouse Management monitors the progress of products through the warehouse.

It involves the physical warehouse infrastructure, tracking systems, and communication between product stations. It is key part of agricultural supply chain and primarily aims to control the movement and storage of materials within a warehouse and process the associated transactions including shipping, receiving, putting away and picking.

Warehouse Management Subsystem comprises warehouse information management of input and output, products and inventory status information management, products package and piling fees management, certificate management and process monitoring, accounting statement management and archives maintenance.

Once data has been collected, there is either batch synchronization with, or a real-time wireless transmission to a central database.

2.8. Portal Website

Portal website is platform to provide general information for agricultural supply chain partners and offers good human-computer interaction interface.

There are two sub-modules in this part,

- Agriculture News and Hot Spot
- Real-time Information of Production Process

2.8.1 Agriculture News and Hot Spot

News and Hot Spot sub-module the users can obtain information of major political, economic, foreign trade, climate and agriculture news both at home and abroad. It also introduces some hot issues such as agriculture industrial structure adjustment, agriculture informationization process, current price and brand characteristics of agriculture product, and dynamic track of international business.

2.8.2 Real-time Information of Production Process

Real-time Information of Production Process may provide the information of pre-production, mid-production, after-production, agricultural products circulation, market exploitation and building.

![Fig.1 Module design of agriculture product SC Information sharing system](image)

2.9. Web Annotator Engine

In Web service annotation methods, the input and output in WSDL are annotated according to the name of parameters. Web Services Description Language is the standard format for describing a web service in XML format. This format is often called simply RDF because it was introduced among the other W3C specifications defining RDF. Web Ontology Language (OWL) are most commonly serialized using RDF/XML syntax.

It facilitates greater machine interpretability of Web content than that supported by XML, RDF, and RDF Schema (RDF-S) by providing additional vocabulary along with a formal semantics. OWL has RDF URI references. RDF is a framework for describing Web resources from various modules. A semantic information has mapping between the temporary ontology and domain ontology with OWL format is performed. When the mapping is finished, the user gets the information from the portal website.

3. Conclusion

Obviously agricultural actors will still use a variety of different business applications and Web Services can cross-cut the existing boundaries. In our proposal, we modeled various business processes as various Web Services and designed a composite service, which is capable to carry out a complete
business process spanned across various systems and involving numerous actors. The agricultural supply chain information sharing system can help the users view their interests visually in the client and the system can display what information sharing system modules. Our framework exhibits robust, flexibility and extensibility to guide the development for e-Agricultural Supply chain information sharing system.

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