

Towards Web-Based Management for Rural Farmer Products in Ketengah (WeRules)

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ABSTRACT

Advances in Internet technologies and related software applications increasingly drive a large number of businesses. The infrastructures provided by these information and communication technologies (ICT) reduce much of the cost of business implementations such as marketing strategies, advertising, transactions processing and collaborative information sharing. Based on these benefits, to achieve a better performance of marketing strategies this paper introduces a new approach to manage rural farmer products in Ketengah Terengganu by using a practical model of web-based portal (WeRules). Currently, the farmers encounter major problems to market their products to outside boundaries of their locations. As they lack of the necessary knowledge on marketing strategies, farmers either have to sell their products in a limited market boundary or capacity. The propose model composed a set of on-line functions such as farmer-products registration, buyers registration, web portal administration, brochure services, catalogue services and link and transactional services. Furthermore, the architecture of the web portal will also be demonstrated. The models identified may improve the quality, speed and realization of digital marketing as well as management for farmer community agriculture products in Ketengah Jaya. Finally, the future works and conclusion will be discussed.

Keywords: *Web-based application, internet technology, rural product, collaborative management.*

1.0 INTRODUCTION

In effort to enhance the viability and competitiveness of the farmers, Malaysian Government through its agencies such as Perbadanan Memajukan Terengganu Tengah (Ketengah), Federal Land Development Authority (FELDA), Rubber Industry Smallholders Development Authority (RISDA), Malaysian Agriculture Research and Development (MARDI) and Federal Agriculture Marketing Authority (FAMA) are allocating substantial resources to develop and extend the comparative business analysis programs in the major agriculture and horticulture industries.

This paper focuses only one agency which is Terengganu. Ketengah was established on 12th April 1973 under the Parliament Acts no. 104/73. It was formed based on the launching of the New Economic Policy in 1971. The policy emphasized the importance of achieving socio-economic goals alongside pursuing economic growth by reducing absolute poverty and restructuring society to correct economic imbalances among races. In line with this policy, the main goals of Ketengah are to carry out social and economic development activities, land

development for settlers, agriculture, industries and commers in the covered regions. Basically, Ketengah is situated in Peninsular Malaysia and covers the area of 443,876 hectares at the beginning of its formation. The provinces include Dungun district rural area, Kemaman and Hulu Terengganu. However, on 12th June 1993, Tasik Kenyir Development Area which covers the area of 209,199 hectares was gazetted as part of the Ketengah area. These form the total area of the whole Ketengah area to become 653,075 hectares. Social and economic development programmes for Ketengah generally focus on the following objectives:

- Land development for agricultural projects using contemporary methods and technologies, systematic and efficient as well as accentuating to crop diversification
- Opening of industries especially agricultural based industries and regional natural resources industries
- Creating increased occupational opportunities via the implementation of agricultural and industrial programmes especially labour-intensive programmes.
- Construction of new towns which equipped with all facilities as well as physical and social infrastructure to locate migrants to enter the provinces.
- Obtaining methods for acquiring certain skills for local Bumiputera in this region as a result of intensive development activities which are going to be carried out in Ketengah area.

The main production of Ketengah is based on the agricultural products. The total area of 8946.4 hectares are used for agriculture. Meanwhile, the area used for farming covers 227,378 hectares (<http://www.ketengah.gov.my>). Among the agricultural products available in Ketengah include vegetable crops such as chinese spinach, lady's fingers, chili and etc. (403.9 hectares); fruits such as orange (pamelo, sweet orange, tangerine, lime) horse mango, starfruit (belimbing), papaya (betik), jackfruit (cempedak), durian, sapodilla (ciku), duku langsung (8625.5 hectares); cash crops (tanaman konta) such as maize, groundnut, tapioca, taro and sweet potato (298.6 hectares); spices (tanaman rempah) such as asam gelugor, tamarind (asam jawa), clove (cengkih), hot chili (cili padi) and kunyit (tumeric) (22.3 hectares) and fresh water fish such as baung, bawal merah, talapia and jelawat (32 kolam or 72,000 fish).

Currently, the farmers encounter major problems to market their products to outside boundaries of their locations. As they lack of the necessary knowledge on marketing strategies, farmers either have to sell their products in a limited market boundary or capacity. To overcome these problems, this paper introduces a new approach to manage rural farmer products in Ketengah Terengganu by using a practical model of web-based portal (WeRules). The propose model composed a set of on-line functions such as farmer-products registration, buyers registration, web portal administration, brochure services, catalogue services and transactional services. The expected benefits from the proposed model are as follows:

- Reduction in advertising cost – this model applied web-based management which provides 24-hours access daily across the global market
- Cheaper and easier provision of information – by putting brochures and other products information on a website to provide electronic access offers a cheaper way to disperse information for the host organization and a faster and more convenient method of access for the public (G. Curtis & D. Cobham, 2002)
- Avoidance of middleman – this model allows direct marketing to the buyers. Besides that, on-line advice and other services may also be provided
- Increase the market of products outside the Ketengah boundaries – the Internet-based applications provides global market access to anyone wherever they are
- Provides a better management of farmer products in Ketengah. For instance, it would increase the farmer profits and avoid ‘pile-up’ of products

The remaining structure of this paper is organized as follows. Section 2 describes the background of current works in rural farmer product management in Ketengah. Besides that, this section also discusses the existing e-trading for agriculture products in Malaysia. In section 3 the model of WeRules will be explained in details. Conclusions and future works are presented in the last section.

2.0 RELATED WORKS

Digital business concepts had opened marketers’ eyes in marketing the products. Nowadays, in developed country the food producers, wholesalers, distributors, entrepreneurs and consumers are connected via Internet. These parties had been able to make online transactions through the web portal incharged by government agencies and private sectors.

Agriculture Department and Mimos Berhad have started initiative in developing a model that offering

virtual market and management for agricultural products. This model has been established by introducing the web portal named as www.agribazaar.com.my. This web portal allows farmers, retailers, wholesalers as well as small and medium scale industries to deliver online trading of their products and businesses. Registered members will get access to any announcements and alerts, a summary of products offered, a business directory and search engine, information on the availability of seasonal fruits, news reports, weather forecast and market analysis. The portal is expected to be launched for nationwide use before the year end.

3.0 WeRules MODEL

The general objective of WeRules is the establishment and development of web-based mediation sites that will progressively minimize the gap between rural farmers in Ketengah and the national on-line buyers.

3.1 Portal Functions

As mentioned before, the objective of WeRules is to provide electronic services that can match the basic e-Business needs of the agriculture businesses by supporting the information flow among the farmers and buyers. This will be accomplished with six progressively culture building on-line functions (Figure 1):

- Farmers-Products registration – this module combines the registration process of farmers fundamentals information and their appropriate products information
- Buyers registration – before any formal transactions can be made, the buyers needs to register their related information into WeRules database. By storing these details, the business can build up a profile of buyers and their buying behavior. This information can be used for targeted marketing activities (G. Curtis & D. Cobham, 2002).
- Web portal administration – this function will be used by administrator to monitor and manage the day-to-day activities happened in the WeRules systems
- Brochure services – relates to generation and publication of an electronic farmers and WeRules profiles
- Catalogue services and link – refers to development and publication of information catalogue for products promotion and customer support as well as related links
- Transactional services – engages several business activities such as order management, purchase term arrangement and discussion group

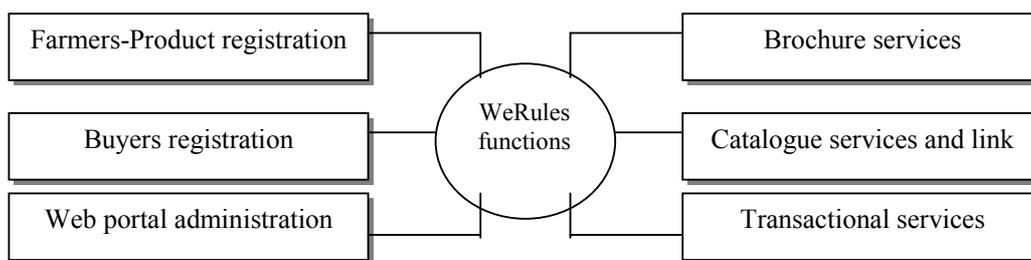


Figure 1: WeRules functions

3.2 Organization Management

All organizations must continuously change due to ongoing changes in the environment. These changes include changes in marketing strategies and the way products need to be delivered to buyers or customers. The distribution of trader stakeholders, is seen to be another factor that contribute to the need of web-based applications. The development of web-based applications is perceived to be able to tackle these changes effectively. However, web-based application development is a complex task, often with multiple classes of users. Therefore, in order to achieve smooth management in implementation of the proposed model, team organization of web-based rural farmer product management need to be reorganized. This team organization consists of three interrelated objects which have influencing impact on one another. Figure 2 shows the relationship structure among the objects.

The first object is farmer product which is the targeted material to be managed. The second object is team management which shows the important roles in producing good delivery of the related processes. Basically, team management consists of web portal maintainers such as application developer and database administrator. Application developer is responsible to develop and enhance the web portal applications. Meanwhile, the database administrator is involves in developing and maintaining an acceptable level of technical aspect of the database management systems. Lastly, the third object in the organization is ICT support which acts as assistance to the team management. F. Wijnhoven (2001) outline the main design parameters of business information services that should be considered is information technology supports. The organization should have a reliable and efficient devices as well as application software to manage activities involve in business transactions between buyers and sellers/farmers.

There exist various concepts in e-Business organization to support stakeholders communication between buyers and suppliers such as centralized and decentralized. In conducting web-based management, the model applies the concept of centralized single broker proposed by M. D. Hengst and H. G. Sol (2001). Figure 3 demonstrates the general concept of centralized *single broker* in web-based management of rural farmer products. In this case, *single broker* is

represented by web portal application. As a result of a centralized *single broker*, there is only one communication line for each buyer and farmer to make business transactions and activities. The web portal administrator could help the farmers to publish their new product information directly on the web portal. Meanwhile, the buyers could retrieve any latest product information and business activities from the web portal. In order to get better information for buyers in dealing with a business transaction one special characteristic will be developed and embedded into brochure services function. This characteristic is product information reviews and summaries.

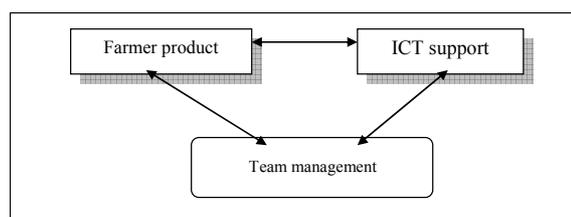


Figure 2: Objects relationships model in team organization

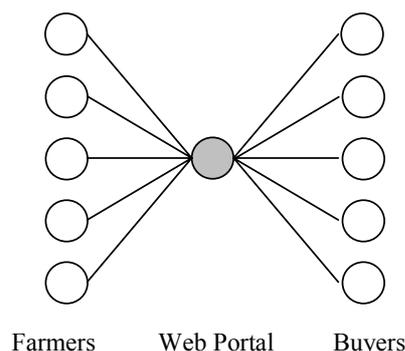


Figure 3: Centralized single broker

3.3 The Implementation Architecture

The implementation architecture proposes of this model is a client-server computing concept. The architecture components consist of one central server and user stations connected by a network. The WWW server (central server) will control the process of database manipulation by using the PHP script. To organize and enhance the WeRules data transactions, MySQL database management systems will be used. It is extremely fast and easy to customize, due to its architecture. Meanwhile, WWW client (user stations)

supports a human-systems interface application which is used in dealing with the WWW server. This concept is very vital in the implementation of any applications accessed via internet. This is to ensure

effective retrieval of information, communication among stakeholders and information sharing process. The general architecture of this concept is represented in Figure 4.

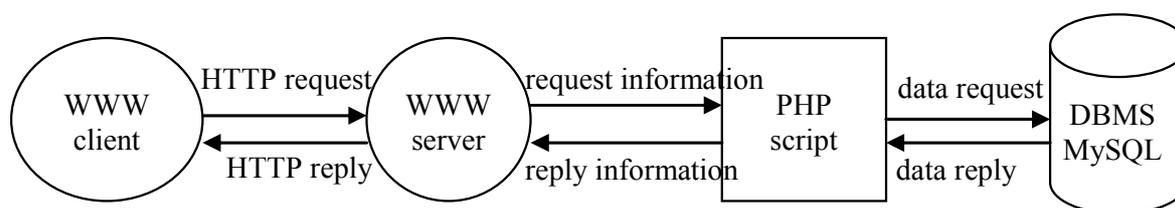


Figure 4: WeRules basic architecture

4.0 CONCLUSIONS

The use of the internet technology for the distribution and retrieval of information and knowledge resources is now a common practice (F. Wijnhoven, 2001). This paper introduces the use of internet facilities for farmers community in Ketengah Terengganu in the process of managing, advertising and marketing their products. The main issues discussed in this paper are the important of application functions to be embedded into the web portal application, the management organization of WeRules and the architecture of the web portal itself. These functions include *Farmers-Products registration, Buyers registration, Web portal administration, Brochure services, Catalogue services and link and Transactional services*. Hopefully, the proposed model will accommodate the requirements of Ketengah community especially the farmers, buyers and web portal administrator in the effort to enhance their activities. Based on this model, we are going to develop a practical web-based application portal which will support the collaboration between farmers and buyers. Hopefully, this practical web-based application portal will become the business intelligence center which could reduce the management time and cost. Lastly, in collaboration with Ketengah management this web-based application portal will be combined with the existing community web portal of Ketengah.

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