Chapter 13

BUILDING SEMANTIC BUSINESS SERVICES

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1. INTRODUCTION

This chapter aims to provide comprehensive exposure to various issues involved in the development of Semantic Web services based Business Process Orchestration. Marketing of Agricultural Produce is selected as the problem domain. The present discussion covers various topics from understanding the problem up to the identification and resolution of the implementation issues. At each stage, an attempt is made to provide a brief background, current research trends, available techniques, selection of tools and details about implementation steps. As an outcome, the reader shall gain the required skills and sufficient level of familiarity of current standards and research in each area.

In section 1, the reader is introduced to the evolution of Agricultural Marketing in India, and the reforms that are planned for implementation. Section 2 discusses a trading use case in the future market followed by a section dedicated to explain the implementation challenges. A discussion on development lifecycle describes the implementation steps for the proposed system. In the subsequent sections, detailed and step-by-step development procedures are provided with comments on relevant standardization, research approaches and tool-sets.

Agricultural Marketing Marketing of agricultural produce is a complex task involving various stack holders, products and business scenarios. In a developing country like India, this activity is influenced by local, socio-economic and cultural characteristics. Evaluating the business processes at
regional or national scale reveals diversity in products, terminology and processes involved to perform complete business activities. While other complex but well-defined business processes are experiencing benefits of services driven e-business; the 'marketing of agricultural produce' has remained untouched by this revolution. Government of India is now planning to introduce agricultural marketing reforms to streamline trading processes involved in all markets throughout the nation. The legal framework is being duly formulated, yet unavailability of proper underlying IT infrastructure will continue to inhibit the implementation and penetration of such technological advancement amongst the users. In absence of such capabilities, the conventional trading transactions will continue to provide meager benefits to a farmer who looses a better price in other potential market, or a wholesaler - who might have got the desired quality product at a lower cost directly from the farm. There is a need to develop affordable and reliable solution that links all the actors involved in the system and provide an environment for a competitive business.

**Evolution of the Agricultural Marketing Process in India** Beginning with the era of barter system, where goods were exchanged for goods, or goods were exchanged for services, through the weekly Bazaar, to more organized Mandi and market yards of the present and the trends towards realizing the reforms in the future markets. This way, the process has evolved to a very matured and complex level (Sreenivasulu V, et al 2001). An informal gathering of the people at a designated place and time has remained a valid model for quite a long time. Today, wholesale spot markets and derivative markets are emerging as hubs for agricultural marketing business (Thomas S, 2003). The trade in this market is heavily influenced by local, socio-economic and cultural characteristics. This is the reason why same product may have different prices at different market yards. Yet the producers have no choice to search for the best available price and forced to sell their products in the local market. Inhibitive transport and storage costs also play a vital role, apart from the urgency to sell the perishable products. Buyers and wholesalers on the other hand face difficulties to purchase desired quality of products at competitive prices. The Model Act (Ministry of Agriculture, Govt. of India, 2003) is formulated to bring reforms in the Agricultural Marketing Process. Additional responsibilities are assigned to the existing Agricultural Produce Market Committee (APMC) to realize the reforms having following objectives:

- To promote setting up of privately-owned markets
- To promote direct sale and contract farming
- To provide transparency in trading transactions
- To provide market-led extension