Abstract

Fresh grocery and vegetable retailer are emerging as organized retail sector, According to a report by the Research on International Economic Relations, The retail business in India is expected to grow at 11 per cent annually from US$322 billion in 2006-07 to US$ 740 billion in 2014-2015. Organized retailers have been classified into three types for this exploratory study purpose; viz, the Corporate Retailer, Regional Retailer and Neighbourhood Retailer. Personal interviews and Questionnaires were the research instruments used in this study. The Study reveals the use of Data Analytic to view the current status of the Retailers from Head Office and Distribution Centre with the ability of deployed and utilized electronic equipment’s, information technology and communication technology by the organized grocery and vegetables retailers. Organization can only be effective if they have to adapt to new technologies. The SAP ERP package used by the many Retailers which provide online Real-time Data to manage Retail. The automated and fully integrated environment provides Retailers with more efficiency in the complex retail business.

1. Introduction

In today's global economy, success in the form of higher performance is increasingly defined by having this "freedom of excess" to innovate, to provide customers with better (stronger) products and services, and to have the ability to act faster and with greater insight within ever-shorter decision window in the face of uncertainty within a rapidly evolving economic system. Today, the convergence of intelligent devices, social networking, pervasive broadband networking, and analytics has changed a new economic system that is redefining relationships among producers, distributors, and consumers. The Indian retail market is the fifth largest retail destination globally. It ranked the fourth most attractive emerging market for investment in the retail sector, according to
AT Kearney's eleventh annual Global Retail Development Index. Though fresh vegetable and grocery retail has been considered as a very low margin business, the market potential has attracted Indian business houses and corporate, driving the forays through different models like single-format, multiformal or integrated urban-rural model. According to a report by the Research on International Economic Relations, there tail business in India is expected to grow at 11 per cent annually from US$ 322 billion in 2006–07 to US$ 740 billion in 2014–15.

Nature Fresh stocks fresh fruits and vegetables, staples, fast moving consumer goods and dairy products. The stores are already selling over 1,000 tons of fresh product daily and also 250 categories of commodities. The company is approaching farmers directly for the procurement of product, seeking to reduce the 40% wastage that occurs through the traditional supply chain. In the enterprise, the increase in the speed of change means that managers cannot rely on experience or intuition alone to make decisions. Shorter decision windows demand a rapid, insightful response based on ongoing internal and external events.

This new environment is moving us from the information economy to "the intelligent economy." What's different in the intelligent economy is scale and time. "Scale" refers to the amount of data as well as the type and sources of data originating from a large network of people and devices. "Time" refers to the need to analyze the data and act in near real time. The successful realization of the intelligent economy, including its components such as intelligent grids, intelligent retailing, intelligent supply chains, intelligent financial management, and even intelligent defense and law enforcement, will depend on many contractual, social, standardization, and technological factors, including the ability to capture, manage, and analyze the vast amounts of data created as part of the interactions and processes.

We need access to information coupled with the ability to analyze and act upon it — all in real time — to create competitive advantage in commercial transactions enables sustainable management of Retail. The growing network of entities and the relationships among them in the intelligent economy will challenge many of today's existing systems to optimize processes for supporting an integrated set of strategic, operational, and tactical decision-making processes. As a result, a new set of technologies is emerging to address the enterprise decision-making, analytics, and process optimization challenges. The need has been felt by organized retailers to establish or increase capability to handle electronic communication and data processing technology to enable the high volume and low value retail operations efficiently. Organized retailers are currently adapting to new technology, which is the trend in grocery and vegetable retailing.

The degree by which each retailer practices the new technologies varies among them. An exploratory study was conducted to understand the current ability of the grocery and vegetable retailers in the organized sector, to practice electronic Communication data process and Real time Data analytic technology was used by the Retailer, It help Retailer to take decision about Inventory stored, Membership card to track the customer buying behavior, forecast better seasonal and present Demand, maintain retail store even at remote place, Quality of product sold and daily Report is generated at Retailer and head office. The undertaken study revealed the retailer’s ability in the area of electronic technology.

2. Literature Review
Retailing is a technology-based business. Retail business opportunities increased because of technology, and brought a great transformation with it. Extending information technology to the point of activity is the key to achieve sustainable, competitive and profitable business (Dan
The volume of transactions is high in any organized grocery and vegetable retail sector, where each and every function is crucial and the applications of electronic devices are desirable and inevitable. Operational applications of electronic devices are barcode readers (BCR), Electronic Point-of-Sale (EPOS), Electronic Payments System (EPS), Electronic Card Reader (ECR), Digital Cheque Reader (DCR), Digital signature capture (DSC) device, Biometric Fingerprint capture (BFP) device, Electronic Weighing Machine (EWM), Electronic Cash Register (ECR), Kiosks, computers and display screens, printers, shopping aid electronic devices, price checkers, and customer’s self-checkouts. The retail back office which is technology driven has clearly emerged as the central hub and conduit of information flow between the storefront and the retail enterprise. Retail Technology solutions in the functional and process area of the business are Electronic Data Interchange (EDI) (Lori and Christine, 2006) and Radio Frequency Identification (RFID) technology (Mairead Brady et al., 2007 and Mikko Karkkainen, 2003).

The applications of Information System are Retail Management System (RMS), Purchase, Inventory, warehouse and invoice systems, Customer Relationship Management (CRM), Retail Information System (RIS) and Business Intelligence (BI) tools (RIS News, 2006). Information and communication technologies also had important impacts on business operations, decision processes, and trading-partner relationships in food retailing. The widespread adoption of scanning technology and the Uniform Product Code during the 1980s provided the technological foundation for the introduction of electronic transmission of order data, industry supported mechanisms for sharing scanner data, and computer-based product-movement analysis at the store level. Information technology was also the basis for significant changes in warehouse operations, logistics systems, and manufacturing processes. (King and Park, 2004). The point of sale, always a crucial area for technology investment, continues its dominance, but with a twist. It is now expected that any POS system will be able to perform the basics, such as maintaining high throughput speeds and handling a wide range of financial transaction types. (Getronics, 2007). The combination of scanning and faster cash registers increased productivity significantly at checkout. With 45% of all the units scanned, productivity increased by 12 - 14%. It was projected that with 90% of all the units scanned, the productivity would increase by 30%. With the introduction of scanning into the retail food industry, a wealth of information was now in the hands of the retailers. Prior to scanners, the information advantage was held by the manufacturers who used the nationally syndicated sales data to calculate movement and persuade retailers to purchase certain quantities of their products (Kahn and McAlister, 2007). Although wireless POS capabilities have been available for years, we are finally seeing some uplift in retailers deploying the technology in significant numbers. More than a fifth of all respondents report that they are currently using wireless POS line busters in their stores – 10% have the technology in place now, and another 12% are currently in the process of rolling it out (Gartner, 2005).

3. Case Study: Nature Fresh Retail Store

3.1. Existing System

The Nature Fresh grocery and vegetable retail stores, which has many shops across Bangalore, each and every stores act as an independent entity there is no mutually coordination and visual statistics to measure what, when & how much is needed. It has high volume of transaction, each and every function is crucial, and applications of electronic devices are desirable and inevitable.
Operational application of electronic devices are bar code readers, Electronic Payment System (EPS), Electronic Card Reader (ECR) Electronic Weighing Machine (EWM), Electronic Cash Register (ECR), computers and display screens, printers, shopping aid electronic devices, price checkers, and customer’s self-checkouts.

The architecture of information systems in Nature Fresh retail stores forms a pictogram of an H that represents the principal tasks.

To drive the H, let us consider the principle tasks involved in Nature Fresh retail stores.

![Figure 1: Shows the retailing H structure.](image)

The goods-related requirement planning, logistical and billing function ensure that the goods flow from the supplier to the retail store and from retailing to the customer. The Business- administrative task considers the value related sphere of the company in the cost accounting from the internal viewpoint. The billing functions of the external accounting and all tasks associated with personnel accounting, employee information, career planning and employee administration.

When all tasks concerned with the suppliers are placed on one leg, all tasks associated with the customers are placed on the other leg, and the logistical functions with goods receipt, warehousing and goods issue are arranged horizontally, the merchandising management-related areas of a retailing company then form H as illustrated in figure 1.

The Nature Fresh retail store uses the traditional H model, which is independent to each retail stores, which affect the supply chain excellence because coordination improves the supply chain profit.

### 2. PROPOSED SYSTEM

In the proposed system, the disadvantage of the existing system can be overcome by using the Advanced H model, which enables the coordination between the retails stores and the head office to maintain and keep track of the all the retail store (Collaborative, planning, replenishment and forecasting).
When all tasks concerned with the suppliers are placed on one leg and all tasks associated with the customers POS (point of sales) are placed on the other leg, the business administrative system at the base which contains General ledger, fixed-asset accounting, cost-accounting and human resources management. The company planning and controlling is at top. The goods- oriented planning logistical and billing tasks of merchandise processing are augmented with the business-administrative systems of the general ledger and assets accounting, cost accounting and personnel management.

- **General ledger accounting**
  The general ledger accounting combines the sub ledger accounting of the creditor accounting, debtor accounting and the materials accounting, and summarizes them to produce the general ledger accounts. Tasks of the general ledger accounting involves maintaining the general ledger account master data, booking of the general ledger accounts, bank transactions and preparations of financial statements- the creation of the financial statement and the financial planning.

- **Fixed-assets accounting**
  In addition to maintaining the fixed-assets master data, the fixed-assets accounting, as another sub ledger accounting, includes entry booking for fixed-assets, booking for depreciation, entry postings, transfer postings and issue posting together with final statements and fixed-assets controlling.

- **Cost accounting and service costing**
  The financial accounting is associated with the external accounting, the cost accounting and services costing are assigned to the internal accounting. Because key figures used in the controlling...
build on the results from the cost accounting, it provides the information basis for the controlling. The cost accounting tasks involve the master data administration with the management of supplementary cost and profit types, the management of the reference quantities and the reference objects, in addition to the cost and profit planning with the planning of the sales proceeds, the goods resource costs and the costs of inner-company services, the acquisition of the actual data and the analysis and monitoring, in particular profit margin calculations and business comparisons. Central profit margin calculations in retailing are the merchandise category profit margin calculation, the supplier profit margin calculation and the customer profit margin calculation.

- **Human resources management**
  In addition to various accounting tasks, the human resources management also includes planning tasks. Maintaining the personnel master data covers the creation and updating of employee master data and the assignment of employees to organizational units.
  The accounting task of the human resources management is the personnel payment. Planning tasks involve determining the management is the personnel requirements using a personnel requirement planning, the personnel acquisition planning and possibly allocation planning, together with a personnel assignment planning and a personnel cost planning. The personnel evaluation and the personnel development planning are further associated tasks.

- **Controlling and Company planning**
  The previously listed tasks have operative nature and describe day-to-day retailing business. Controlling and company planning involves the strategic tasks of retailing management. For support purposes, the data are required in a highly aggregated form that supplies the important operating numbers.
  These then form the basis for company decisions. The aggregated data are extended with external data. Technically, data warehouse systems, large databases that are optimized for rapid data retrieval and forming operating numbers for large data volumes are often used in this area.
  The difference between controlling systems, executive information systems and systems for company planning is somewhat fuzzy. The tasks that arise here are cyclical analyses for price and sales controlling or logistical controlling and profit-related analyses, such as controlling specific sales promotions or determining the covers a superset of the tasks of retailers and wholesalers. It can be shortened appropriately for specific situations.

### 3.3. Retail Management System At Headquarters

Nature Fresh retailer to set up information system that integrate and connect headquarters, in-store processors and the point-of-sale. Lack of a comprehensive solution forced chains to piece together closed proprietary systems often based on disparate data models and data access techniques.

As an integrated, business-wide, point-of-sale and Retail management solution, Headquarters allows Nature fresh chains to take advantage of price and technical innovations in commodity hardware, software and Internet-enabling technologies. Now Nature fresh chains can exploit the same technologies that reveal the most saleable mixes of merchandise and shave dollars off big chain store prices.

Integrated point-of-sale and in-store functions that trade data with Retail Management System Store Operations Ability to create new items, set pricing and discounts, generate purchase orders and direct inter-store inventory transfer from the head office Automatic uploading of stores' inventory movement, financial transactions and sales data, then organizing the data into a comprehensive all-knowing database Ability to see, manage price and control inventory across multiple locations and
to make informed decisions based on up-to-date and reliable data. A pre-packaged solution that offers low licensing costs and rapid investment returns. Highly customizable features for individual needs. Built-in security system to restrict employee access to sensitive information. Open-standards access to all retail information stored in a Server database. Detailed sales data for data warehousing, OLAP and business intelligence analyses to view inventory levels at all the stores in the enterprise. Support for virtually all forms of data communications between the head office and stores using a dial-up, virtual private network (VPN), the Internet, LAN and WAN. The required software components that enable you to successfully manage your multi-store operations are: Store Operations.

3.4. Retail Management System For Store Operations

It operates at each store in the retail enterprise and maintains sales data in a local database. Store Operations automates each store's back-office operations (inventory, pricing, tracking customers and suppliers, etc.) and handles all sales transactions at the checkout lane. Key information contained in the Store Operations database is regularly uploaded to the head office. At the same time, Headquarters downloads management's changes made at the head office to each store's database.

3.5. Mapping Of Flows In Nature Fresh Retail Chain

In Nature Fresh Retailing they have the distinct ability to adapt themselves to the electronic environment, but differ in the coverage of processes, usage and practice of information, communication and electronic technology. The use of Real Time Data analytics like SAP used in Nature Fresh makes the changes faster like price, Demand, Seasonal Demand, Current Inventory status, daily collection of cash like e-money and currency. Such that the Head office of Nature fresh get to know the current scenario and takes proactive step to fulfill the customer requirements with
financial stable. The Use of Real Time Data analytics automatically sends the data from the Nature Fresh to Head Office and Head Office sends the Data again to the Distribution Center (DC).

![Figure 4: System view of natural fresh retailers](image-url)
The system view deployed at the distribution center, head office and outlets shown in figure 4. The operations can be categorized in to three functional areas, viz., supply source, back office entities and outlets, as illustrated in figure 5.

Figure 5: Operational view of natural fresh retailers

4. Conclusions
Today Retailing sector are booming sector in India and the proactively management of the retail sector increase the supply chain profitability and reduces the wastes due to short life span of the vegetables and diary items. The Advanced H model, which enables the coordination between the retails stores and the head office to maintain and keep track of the all the retail store (Collaborative, planning, replenishment and forecasting). The use of Real Time Data analytics used in Nature Fresh
makes the changes faster like price, Demand, Seasonal Demand, Current Inventory status, daily collection of cash like e-money and currency. Such that the Head office of Nature fresh get to know the current scenario and takes proactive step to fulfill the customer requirements with financial stable. The Technology also facilitates the organizations standardization across business locations and technological capability aided them to graduate to consolidate planning at the national level, and detailed scheduling at the store level.

References