NALAIYA THIRAN
(Professional Readiness for Innovation, Employability and Entrepreneurship)
LITERATURE SURVEY 2022-2023

Team Id: PNT2022TMID38670
Team Title: Retail store stock inventory analytics

Team Leader: S.Saranya
Team members: R.Atchaya, K.Bhuvaneshwari, S.Sakthi Maheswari, S.Snega

INTRODUCTION		SURVEY/BODY OF REVIEW					CONCLUSION		
Year	Title	Keywords	Problem Definition	Methodology (Algorith Protocol…Etc)	Input Parameters	Result	Advantages	Disadvantages/ Drawbacks	Research Gap/Research Question
1.2022	A smart shelf design for retail store real time inventory Management automation	Real time inventory management smart shelf load cell.	This study is one of very few studies which have investigated a shelf design with load cells	1.Radio-frequency identification (RFID) 2.automatic identifification and data capture (AIDC) 3.point of sale (POS)	A case study to identify the impact of RFID on improving supply chain performance at two giant retail is present	The test bed shelf and the bottom part as the rigid layer are made from an aluminum sigma profile with built-in rail	The improvement in merchandise availability influenced sales performance by 15%–20%	1.High marketing cost 2.Very high competition	Digital converter and has a serial interface as the output for the converted data.

2.2022	Empirical evaluation of IRI mitigation strategies in retail stores	1.Inventory record inaccuracy 2.Inventory audit 3. retail store	This study evaluates the effectiveness of mitigation strategies currently employed by retailers to manage operational issues related to inventory record inaccuracy (IRI) in retail stores	1.National retail security survey (NRSS) 2.Inventory record inaccuracy (IRI)	1.DCs 2.Misplaced SKUs 3.Unrecorded damaged products	Indicate that inventory errors degrade store performance much faster than previously	1.An improved in-stock position of items sold in retail stores 2.Need of routine physical in ventory audits.	It is important to note that different IRI mitigation strategies may require firms to re-design or reorganise their business processes.	However, a successful execution of this operational strategy requires that retailers accurately.

3.2022	Case study of Inventory Management using ERP system	1.Inventory management 2.Track sales 3.Sales clearance 4.Time Saving 5.Warehouse 6.Stock outs.	1. To maintain accurate stock status avail at any time and any type of goods 2. To follow the scientific production 3. Able to check the performance of inventory system with the basis of on demand 4. Based on customer requirement the inventory system suggests material requirement plan	1.ERP software 2.ERP software identified SAP,Oracle, Microsoft	1.Standardized item descriptions 2. Quantity Of material,	Inventory management powered by ERP improves supply chain efficiency as well. It can reduce double-handling of commodities and automate daily chores like reordering as a centralized system.	1.satisfy expected demands 2.avoid running out of stocks 3.To allow operations	1.Proper item list doesn't exit 2.There is lake of consistency 3.There is shortage of product	1. Implementation of ERP cost is high and it has more time delay so we implement AI to reduce cost and time delay

4.2022	Using Lean to Improve Operational Performance in a Retail Store and E-Commerce Service: A Portuguese Case Study	1. E-Commerce ; 2.lean management 3. order fulfilment rate 4. out-of-stock 5. value stream mapping	Involved two Lean initiatives, which together have contributed to a significantly reduction in the number of out-of-stock events incurred by a retail store and an increase in the order fulfilment rate accomplished by the online commerce service	1.Value stream management (VSM) 2.Lean tool 3.First in first out(FIFO)	1.Fast-moving consumer goods (FMCG) 2.Areas of a food retail store 3.Fresh food markets	Shows how Lean methods and tools can be applied to improve the operational performance in a retail environment	More efficient and faster replenishment process.	1.lost sales and decreased consumer loyalty 2.Poor in-store replenishment 3. It was only conducted in one store.	Extend the application of the described methodology to the other food markets

5.2021	Inventory record inaccuracy and store-level performance	1.Inventory record inaccuracy 2.Retail 3.Supply chain 4.Network data envelopment analysis 5.Store performance	Evaluate the effects of IRI on retail store inventory and sales management performance	1.Network data envelopment analysis (NDEA) 2.Data envelopment analysis (DEA) 3.Radio Frequency Identification (RFID)	1.Backroom Staff(FTEs) 2.Backroom size (m^2) 3.#SKUs Items received	1.Demonstrate that IRI improvement is small for near efficient stores and large for highly inefficient stores. 2.They conclude that they do not affect retailers operational performance	1. Helps retailers to identify shop level inventory and sales management process. 2..Identify stores that are lagging behind in sales	1. Increased inventory costs. 2.loses sales 3. poor service deliveries	1. It is not considered for High-volume Stock Keeping Units. 2.Not able apply data warehousing and it is only limited with store level performance 3. Dynamic performance measurement is not considered in this work.

6.2021	Simulation of inventory management systems in retail stores: A case study	1.Inventory management 2.Retail store 3.Simulation 4. Arena	Focuses on a retail store and explores a solution for an inventory-related problem experienced by the firm and Ensure a continuous supply of materials, spares and finished goods such that production is not disrupted and the customer's demand is met in a timely manner	ABC Analysis with prioritization technique in ARENA simulator	1.Customer arrival time, 2. The number of customer demand. 3.Purchase amount distributions.	The inventory level is further reduced by 73% compared to the existing system. Store managers in various organizations may utilize the proposed methodology for improving their inventory management system	Optimize various costs associated with inventories like purchase cost, carrying a cost, storage cost, etc.	Focused only on a single merchandise that was found to be the most crucial as per the ABC analysis	1. To improve the existing performance of the store, a new optimal inventory management system 2. The store has to incorporate the reorder level and the ordering quantity as proposed with the model in order to obtain better results 3. The present study only focused on single merchandise that was found to be the most crucial as per the ABC analysis.

7.2021	Pack size effects on retail store inventory and storage space needs	1.Backroom 2.logistics 3.stock-out 4.cycle service level 5.order size;	Systematically Investigates the effect of pack size constraints on in-store inventory and storage space needs.	Simulation Model SKUs complex optimization models.	1.Order Packet size(OPS) 2. mean 3. standard deviation of the demand and the desired Cycle Service Level(CSL)	Increasing pack sizes increases service levels.	Reduces handling costs	Orders will be placed less often and therefore new merchandise will arrive less frequently at the store	1.Not considered Self life 2.Here the analyses should be not generalized to additional demand distributions for stochastic demand and additional inventory replenishment policies 3.It is not having efficient management inventory system.

8. 2021	Emerging Market Retail: Transitioning from a Product-Centric to a Customer-Centric Approach	1.Retail Analytics 2.Performance Metrics 3.Organized and Unorganized Retailers 4.Strategic Matrix 5.Retail value Chain 6.Emerging Markets	Provide EM brick-and-mortar retailers with guidance on applying analytics at upstream and downstream stages in the value chain when shifting from a product-centric approach to a customer-centric approach	1. Artificial intelligence 2. Agile 3. ERP 4. Spreadsheets 5. Manual logbook ledger	gross domestic products	Presenting an organizing framework and a strategic matrix that can resolve EM retailers' concerns based on exploratory research, without empirical examination	Organized retailers can gain localized competitive advantage and leverage their scale in EMs. Adopting a forward-looking customer-centric approach will enable EM retailers to manage the transformational shifts in the business environment.	Retailers make marketing decisions based on past customer profitability but fail to account for customers future profitability And also they cannot predict customers' future buying pattern, i.e., which product a customer may need at a specific time and in how much quantity, what are the next or associated products the customer might need, and how to manage the customer ahead of the competition for sustainable profits	Research is regarding innovation's role in aiding the adoption of analytics in EMs by encouraging technology acceptance and readiness among EM customers (RQ9) and technology leapfrogging in various product categories (RQ10)

9.2021	Integrated Vendor-Managed Time Efficient Application to Production of Inventory System	1.Model, Requirement Engineering 2.Software requirement specification 3.Interface 4.Database	The demand and supply chain of the goods taking minimum time into the consideration for maximizing the profit throughout the cycle of delivering the products. Establishes a solution for the management of the inventory products concerning time and cost for the efficient delivery of the products into the competitive market with the inventory management rules and policies where the stock deteriorates with time and recovery process is unreliable.	Software Development Cycle Model, Microsoft Visual Studio Code, Microsoft SQL Server, and .NET Framework 4.5.	1.Ordered products. 2.stock levels, product details 3.add/manage sales 4.procurements.	Focuses on the demand and supply chain of the goods taking minimum time into the consideration for maximizing the profit throughout the cycle of delivering the products. This has been implemented successfully with a vision for medium scale industry work.	Time efficient. Things and attributes can be inserted, updated, and deleted easily as per need. The software is very much flexible.	Cost of trillions of products is being mismanaged. A vendor-managed inventory system can be bad for a business when it keeps the business from seeking better-suited or lower-cost options.	1.This existing project can be developed and enhanced more through high mathematical computation. 2.These works can also be performed through machine learning and use it for large scale industry.

10. 2021	Study on Inventory Management Optimization of small and Medium-Sized retail companies in the context of new retail:based on AHP	1.Inventory management 2.Newretail,AHP 3.Inventory 4.ptimization.	Due to company growth, the current inventory system not suitable. It must be in on line mode and off line mode.	1.AHP 2.Fuzzy Quantification method, 3.SMEs. 4.yaahp software	1.Weights of indication factor 2. Random Consistency Indicator	The influence of New retail model on theinventory management of the company,it process some optimization measure.	1.Executivecability 2.Communication& coordination ability 3.smoot process	1.Increase the pressure and cost. 2.Overstock goods occupy a large amount of funds. 3.Cash flow difficulty	The inventory management system consistency is not sufficient to all small and medium size retailers.

11. 2021	Inventory management for retail Companies:A literature review and current Trends	1.Retail 2.Management 3.Inventories 4.Smes 5.Literaturereview	The determination of the optimal inventory level is a fundamental part of the life of organizations due to the high investment that it represents at the time of its acquisition, administration, and maintenance.	1.PICO 2.KPI, 3.Atlasi.ti Software. 4.ERPandSMEs. 4.RFID. 5.EOQ,AUD, IQD.	1.Product availability 2.Service Quality 3.Percentage of product claimed	By managing processes, discrete distribution functions should be used, such as Poisson, binomial, geometric, inventory, retailers meet customer demand without running out of stock .	1.Decrease in monetary loss 2. Higher operating 3.Performance, and a higher	1.Concerning costs 2.Tasks maintenance and applying proper protocols	To all those retailers with limited resources, cheaper software is accessible that could help with the management of their inventory like bar codes or policies as EOQ, AUD, and IQD, which will allow optimizing their stock without making considerable investments

12. 2021	Effective uses of retail store manage ment system for small retail store	1.Retail store manageme nt system 2.small retail store	They should also be sold quickly before the expire.	A Sample Retailers had to be randomly selected.	First in first out(FIFO)	It is clear that the goal of every retailer to transform visitors into buyers.	This can be done by introducin g some technolog y to small retail stores	Fixed basic issues such as storage on racks, sales system issued due to contamination and stocks.	It is completed buy product in a retail stores.

13. 2021	Study on inventory management optimization of small and medium size retail companies in the context of new retails	1.Inventory management 2.New retail 3. AHP inventory optimization	The purpose is to study is existing problems and put forward optimization measure based on its situations.	ABC Analysis, Forecasting algorithm	Raw materials	Decrease company's inventory level and holding costs by avoiding overstocks and to apply the agent system in order to automate the inventory management processes	1.Meets anticipated demand 2.Smooth production requirement 3.Protect against stock-outs	Production delays, shortages and/or dissatisfied customers	To achieve results of demand forecasts, safety stock and reorder points into simulation software in order to achieve more accurate results.

14. 2021	Case study on inventory management improvement	1.ABC classification 2. Demand forecasting methods 3.Inventory management 4.Replenishment policies.	Find the quantity of inventories that will fulfil the demand, avoiding overstocks	Adds new experiment and fore casting on the same analysis data	The safety stock protects from trade of due to unanticipated demand for the item levels of inventory investment.	This item were the following: 16.69% of total inventory efficient inventory management consistent of ABC	Each material can be produced in the most economical quantity	Sometimes, the orders are placed at a irregular time periods which may not be convenient to procedure of or the suppliers are the materials	This item can be delivery for a regular time in the produces are the suppliers of the materials

15. 2021	Out-of-stock justifications and consumers behavioral outcomes– exploring the role of product type and sales level information in out-of-stock situations	1.Out-of-stock 2.Product type 3. Sales level information 4.Perceived popularity 5.Perceived uniquenes s 6. Negative affect	Examines how product related attributes interact with Out Of Stock justifications to influence consumer responses to stock out	1.Reactance Theory 2.Attribution theory 3.Context Theory 4.Phantom Theory	1.Product Type 2. Sales level information 3. Product familiarity and knowledge	Examines the impact of communicati ng that the stockout is due to high demand and short supply.	Transportat ion cost, search cost, and time cost are very low	Only factors that are common across all types of stores are incorporated.	Did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

16. 2020	Control of inventory dynamics for products with low demand	1.Low demand 2.Supply chain 3.Forecasting model 4.EOQ model	ABC analysis and XYZ analysis, do not allow identification of the conception process dynamics and therefore, cannot be used for the classification used for the classification and improvement of forecasting models for stock conception	1.LMNand FMR 2.forecasting models 3.ABC analysis 4.XYZ analysis 5.EOQ model	1.processes 2.discrete distribution functions should be Used such as Poisson, binomial, geometric,	Despite the obvious achievements in the development of models and method of inventory management in supply chains.	1.High level of product availability 2.Quick response 3.Improve accuracy 4.predictative	1.Some error between a forecast and an actual demand is to be expected	Development of algorithm for stock nomenclature items forecasting parameters estimation under low demand to improve the inventory management

17. 2020	Inventory Management	1.Inventory Management, 2.Purchasing, 3.Operation Management, 4.Supply Chain.	The assertion of the stock management is disquieted regarding keeping sufficient merchandise approachable to avoid strolling out whereas at associate degree equal time maintaining as sufficiently small inventory balance to permit for an inexpensive return on investment. Inventory is troublesome to govern as a result of it crosses such a big amount of strains of responsibility.	**Primary Source:** External Guide, Data From Staff, **Secondary Data:** 1.Annual Reports Of The Units, 2.Other Reports Of The Units , 3.Brochures, 4.House Magazine Of The Units, Internet.	Consumables required for processing .Eg : Fuel, Stationary, Bolts & Nuts etc. required in manufacturing Local purchased Items required for production	It Determined That There Are Common Changes In Specification With The Help Of The Purchasers Rendering The Already Procured Stock Either Obsolete Or Non-Transferring	1.Accuracy 2.Reduce Risk, 3.Cost Savings, 4.Greater Insights.	Acceptable Approximations Are Created The Data Dependable For The Observe, However, To Hold The Secrecy Necessities Of The Corporation.	The sudden Fluctuation in demand and provider of products, also, necessitates the requirement for stock as a result of it provides a cushion for future worth fluctuation.

18. 2020	Application and Analysis of Retail Inventory using Data Mining Techniques	1.Retail Inventory 2.Data Mining 3.Dataset 3.Clustring	Inventory management requires pre-planned goals and attention to detail, and prioritizing items that require less attention can be a waste of time and resources. Learning indications about customers shopping patterns by showing association.	1.Clustring 2.K-means algorithm 3.Associtation rule 4.Datamining.	1.Customer Behaviour 2.Customer Profile	Inventory management plays a major part of retail industry and data mining techniques can be of use to store products efficiently.	1.Product efficiency 2.Valuable information can be extracted from the customer 3.Increase the attention	1.Expensive 2.It requires the large database.	1.Customer relationship is get managed. 2.Combining customer and transaction data to be get identified.

19. 2020	Development of Pressure Sensing Array System for Retail Inventory Management	1.Sensing system 2.Pressure sensing array	1.Pressure sensing system for real Time monitoring of inventory on the retail shelves and it also includes labor intensive stock taking procedures and mismatching of goods in retail store as compared to system record.	1.RFID (Radio-frequency Identification) 2.SKU(stock keeping unit) 3.System firmware algorithm	1.Shelve stock count 2.Items placed on the shelve	Effective and timely goods replenishment procedure upon low stock count detection	1.Increase the overall sale and profit. 2.Rreplenish the goods efficiently	1.Potentials miscounting of the goods and mismatching with system records. 2.Inability to track and monitor inventory movement in retail store will also lead to loss in sales as goods	The cost of RFID technology will be more expensive as compared to the barcode system due to the individual tag pricing and scanner required

20. 2019	Inventory Management For Retail Applications In IOT Based	1.Cloud, 2.Customers, 3.Iot, 4.Retail, Shopping	To Obtain Maximum Sales With Minimum Operating Costs. Customers Will Want To Check For The Availability Of The Product. Customers can check for the availability of a particular product on the mobile application. This will save time for the customer in case a product is not available at a particular store.	1.RFID, 2.IOT	1.Android Mobile, 2.Load Cell, Sensor	It Helps Both Customers And Retailers Know The Quantity Of Each Product In A Store, A Lot Of Time And Effort Can Be Saved For Them	1.Save Time, 2.Quality	1.Inconsistent Tracking, 2.Inaccurate Data, 3.Problem Stack, 4.Limited Visibility, 5.Changing Demand.	To avoiding the Out of Stock situation where the store runs out of a particular product. By implementing this system in stores, the stores can improve their sales and profits.

21. 2019	Efficiency Analysis In Retail Sector: Implementation Of Data Envelopment Analysis In A Local Supermarket Chain	1.Data Envelopment Analysis, 2.BCC Model, 3.Retail Sector Efficiency Analysis, 4.Performance, 5.Measurement,	The Well-Known Mathematical Model Based Technique, Data Envelopment Analysis (DEA) Is Also Used For Measuring Performance. DEA Is Used For Assessing Productivity And Efficiency Of Decision Making Units (DMU) And It Is Non Parametric.	DEA Is A Methodology That Evaluates Relative Efficiency Of DMus With Using Multiple Inputs And Outputs. Also, DEA Is Used For Analyzing The Managerial Performance Of Productive Units.	1. Size Of The Land. 2.Number Of Employees 3.Number Of Deliveries 4.Total Cost	Performance Evaluation Can Be Conducted For All The Stores Of The Retail Chain And Moreover, Number Of Inputs And Outputs Can Be Increased.	1.It Is Easy To Return Or Change Employees Are Friendly And Helpful. 2. The Store Is Clean And Tidy. 3. Store Has A Good Location; 4. It Is Easy To Arrive. 5. Price Labels And Discount Tags Are Accurate.	1.Some Improvements In Store Should Be Conducted In Order To Avoid Close Down Decision	The performance evaluation can be conducted for all the stores of the retail chain and moreover, number of inputs and outputs can be Increased.

22. 2018	A Literature Review of Retailing Sector and Business Retailing Types	1.Retail, 2.Consumer, 3.store, 4.Ownership, 5.merchandise, 6.price	The retail sector probably is the most important sector of economy because it has to do directly with consumer. It includes all stores, from small groceries to supermarket chains and shopping malls that sell products and services to final consumer for personal and household use.	1.EOQ model, 2.FIFO, 3.ROP(reorder point)	customer needs, creating product types, collecting market information, and granting customer's credit.	Retailing includes all activities associated in selling products and services to ultimate consumer for personal, family and household use. It makes the distribution of products from large volumes in small volumes. Retailing makes a connection between the producer and consume	1.Time utility, 2.Profitable sale, 3.Sale support service	1.Attracting customers, 2.Retaining customers, 3.Keeping up with changing customer expectation, 4.Encouraging digital and contactless payments, 5.Supply chain management	To increases effiency, Availability, provinding information about consumer and supplier.