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# Optimizing Green Supply Chain Inventory Models in the Dairy Industry: The Strategic Role of Human Resource Management

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**ABSTRACT:**

This paper explores the pivotal role of Human Resource Management (HRM) in the implementation of a green supply chain inventory model within the dairy industry, focusing on storage optimization through the application of Simulated Annealing. As sustainability becomes increasingly critical in supply chain operations, organizations are adopting innovative approaches to reduce environmental impact while enhancing efficiency. The integration of advanced optimization techniques like Simulated Annealing presents significant opportunities for improving inventory management practices and minimizing waste. Drawing on theoretical frameworks and practical insights, this study elucidates the multifaceted contributions of HRM in facilitating the adoption and execution of green supply chain strategies. Key areas examined include talent acquisition and development, training and education, change management, performance management, employee engagement, conflict resolution, and ethical responsibility. Through a comprehensive analysis of these dimensions, the paper underscores the importance of HRM in driving organizational alignment, fostering a culture of sustainability, and achieving operational excellence in the dairy industry. A case study approach is employed to illustrate the real-world implications of HRM's role in implementing a green supply chain inventory model with storage optimization using Simulated Annealing. By examining a specific scenario within the dairy industry, this research offers practical insights and actionable recommendations for organizations seeking to enhance their environmental performance while maintaining competitiveness in today's dynamic market landscape.

**Keywords: -** Human Resource Management, green supply chain, inventory, storage, and Simulated Annealing.

## 1. Introduction

In recent years, the imperative for sustainability and environmental responsibility has significantly reshaped the landscape of supply chain management, prompting organizations across industries to reevaluate their operational practices and adopt greener, more efficient approaches. Within this context, the dairy industry stands as a prominent sector undergoing transformation, driven by evolving consumer preferences, regulatory pressures, and the recognition of environmental stewardship as a strategic imperative.

Central to this transformation is the concept of green supply chain management, which entails integrating environmental considerations into every stage of the supply chain, from sourcing raw materials to distribution and beyond. One crucial aspect of green supply chain management is the optimization of inventory management practices to minimize waste, reduce resource consumption, and enhance overall efficiency. This optimization becomes even more critical in industries like dairy, where perishable goods require careful handling and storage.

Simulated Annealing, a heuristic optimization technique inspired by the annealing process in metallurgy, has emerged as a powerful tool for addressing inventory optimization challenges. By simulating the annealing process of metals, this technique iteratively explores potential solutions to complex optimization problems, gradually refining them to find near-optimal solutions. Applied to inventory management, Simulated Annealing can help organizations strike a balance between inventory levels, storage costs, and service levels, thereby improving overall supply chain performance.

However, the successful implementation of a green supply chain inventory model, augmented by Simulated Annealing, requires more than just technical expertise and algorithmic proficiency. It necessitates a comprehensive approach that considers the human dimension of organizational change and transformation. This is where Human Resource Management (HRM) assumes a central role.

HRM encompasses a range of practices and strategies aimed at effectively managing an organization's human capital to achieve its strategic objectives. In the context of implementing a green supply chain inventory model within the dairy industry, HRM plays a pivotal role in several key areas. These include talent acquisition and development, training and education, change management, performance management, employee engagement, conflict resolution, and ethical responsibility.

This paper seeks to explore and analyze the critical role of HRM in facilitating the adoption and execution of a green supply chain inventory model with storage optimization using Simulated Annealing in the dairy industry. Through a combination of theoretical insights and practical examples, it aims to highlight the importance of human capital management in driving sustainable supply chain initiatives and achieving operational excellence. By examining the interplay between HRM practices and environmental sustainability within the context of inventory management, this research contributes to a deeper understanding of how organizations can effectively navigate the complexities of green supply chain implementation and leverage human resources as a strategic asset in pursuing sustainability goals.

## 2. Fundamentals of Human Resources

Fundamentals of Human Resources (HR) encompass a broad range of principles, practices, and strategies aimed at effectively managing an organization's workforce to achieve its goals and objectives. These fundamentals form the backbone of HR management and are essential for creating a productive, engaged, and motivated workforce. Here are some key fundamentals of Human Resources:

**1. Recruitment and Selection:** HR is responsible for attracting, sourcing, and selecting qualified candidates to fill vacant positions within the organization. This process involves creating job descriptions, advertising job openings, screening resumes, conducting interviews, and making hiring decisions.

**2. Training and Development:** HR facilitates the training and development of employees to enhance their skills, knowledge, and abilities. This includes designing and implementing training programs, providing resources for professional development, and offering opportunities for career advancement.

**3. Performance Management:** HR establishes systems and processes for evaluating employee performance and providing feedback. This may involve setting performance goals, conducting regular performance reviews, identifying strengths and areas for improvement, and rewarding high performance.

**4. Compensation and Benefits:** HR is responsible for designing and administering compensation and benefits programs to attract, retain, and motivate employees. This includes determining salary structures, administering employee benefits such as health insurance and retirement plans, and managing compensation-related policies and procedures.

**5. Employee Relations:** HR oversees employee relations by promoting positive workplace relationships and resolving conflicts or disputes. This involves developing policies and procedures related to employee conduct, addressing grievances or complaints, and fostering a supportive and inclusive work environment.

**6. Legal Compliance:** HR ensures compliance with employment laws, regulations, and policies to mitigate legal risks and protect the organization from potential liabilities. This includes staying updated on changes in labor laws, implementing policies to prevent discrimination and harassment, and handling legal matters related to employment disputes or claims.

**7. Strategic Planning:** HR plays a strategic role in aligning human capital with organizational goals and objectives. This involves workforce planning, talent management, succession planning, and developing strategies to address current and future workforce needs.

**8. Employee Engagement and Retention:** HR focuses on engaging and retaining employees by creating a positive work culture, promoting employee morale and satisfaction, and implementing initiatives to enhance employee engagement and loyalty.

**9. Diversity and Inclusion:** HR promotes diversity and inclusion within the organization by embracing differences, fostering a culture of respect and belonging, and implementing diversity and inclusion initiatives to ensure equitable opportunities for all employees.

**10. HR Technology and Analytics:** HR leverages technology and data analytics to streamline HR processes, improve decision-making, and gain insights into workforce trends and performance metrics.

## 3. Green supply chain inventory

Green supply chain inventory refers to the management and optimization of inventory within a supply chain framework with a focus on sustainability and environmental responsibility. It involves integrating environmentally friendly practices into inventory management processes to minimize waste, reduce carbon emissions, conserve resources, and promote sustainability throughout the supply chain.

**1. Inventory Optimization:** Implementing strategies to optimize inventory levels and minimize excess stock, which can lead to reduced waste and lower storage costs. Techniques such as demand forecasting, lean inventory practices, and Just-in-Time (JIT) inventory management are commonly employed to achieve this.

**2. Sustainable Sourcing:** Selecting suppliers and materials that adhere to environmental standards and promote sustainability. This may involve sourcing from suppliers with eco-friendly practices, using recycled or renewable materials, and reducing reliance on products with high carbon footprints.

**3. Efficient Transportation:** Optimizing transportation routes and modes to reduce fuel consumption, emissions, and environmental impact. This can include consolidating shipments, using energy-efficient vehicles, and leveraging alternative transportation methods like rail or sea freight.

**4. Inventory Packaging:** Utilizing eco-friendly packaging materials and designs to minimize waste and environmental impact. This may involve using recyclable or biodegradable materials, reducing packaging size and weight, and adopting reusable packaging solutions.

**5. Reverse Logistics:** Implementing processes to manage product returns, recycling, and disposal in an environmentally responsible manner. This includes establishing systems for product refurbishment, recycling materials, and minimizing waste throughout the product lifecycle.

**6. Green Technologies:** Leveraging technology solutions such as inventory management software, IoT (Internet of Things) sensors, and RFID (Radio-Frequency Identification) tracking to improve inventory visibility, accuracy, and efficiency while reducing environmental impact.

**7. Collaboration and Partnerships:** Collaborating with supply chain partners, industry associations, and regulatory bodies to promote sustainability initiatives and share best practices. This can involve joint initiatives to reduce carbon emissions, improve supply chain transparency, and implement green procurement practices.

**8. Performance Measurement and Reporting:** Establishing metrics and Key Performance Indicators (KPIs) to measure the environmental performance of the supply chain, such as carbon emissions, energy consumption, and waste generation. Regular reporting on these metrics helps track progress towards sustainability goals and identify areas for improvement.

## 4. Related Work

Supply chain management can be defined as: "Supply chain management is the coordination of production, storage, location and transport between players in the supply chain to achieve the best combination of responsiveness and efficiency for a given market. Many researchers in the inventory system have focused on a product that does not overcome spoilage. However, there are a number of things whose meaning doesn't stay the same over time. The deterioration of these substances plays an important role and cannot be stored for long {Yadav et al. (1-10). Deterioration of an object can be described as deterioration, evaporation, obsolescence and loss of use or restriction of an object, resulting in less inventory consumption than under natural conditions. When raw materials are put in stock as a stock to meet future needs, there may be a deterioration of the items in the arithmetic system which could occur for one or more reasons, etc. Storage conditions, weather or humidity. {Yadav, et al. (11-20)}. Inach generally states that management has a warehouse to store the purchased warehouse. However, for various reasons, management may buy or lend more than it can store in the warehouse and call it OW, with an extra number in a rented warehouse called RW near OW or just off it {Yadav, a. al. (21-53)}. Inventory costs (including maintenance costs and depreciation costs) in RW are generally higher than OW costs due to additional costs of running, equipment maintenance, etc. Reducing inventory costs will cost-effectively utilize RW products as quickly as possible. Actual customer service is only provided by OW, and to reduce costs, RW stock is cleaned first. Such arithmetic examples are called two arithmetic examples in the shop {Yadav and swami. (54-61)}. Management of the supply of electronic storage devices and integration of environmental and nerve networks {Yadav and Kumar (62)}. Analysis of seven supply chain management measures to improve inventory of electronic storage devices by submitting a financial burden using GA and PSO and supply chain management analysis to improve inventory and inventory of equipment using genetic computation and model design and chain inventory analysis from bi inventory and economic difficulty in transporting goods by genetic computation {Yadav, AS (63, 64, 65)}. Inventory policies for inventory and inventory needs and miscellaneous inventory costs based on allowable payments and inventory delays. An example of depreciation of various types of goods and services and costs by keeping a business loan and inventory model with pricing needs low sensitive, inventory costs versus inflationary business expense loans {Swami, et. al. (66, 67, 68)}. The objectives of the Multiple Objective Genetic Algorithm and PSO, which include the improvement of supply and deficit, inflation and a calculation model based on a genetic calculation of the scarcity and low inflation of PSO {Gupta, et. al. (69, 70)}. An example with two stock depreciation on assets and inventory costs when updating particles and an example with two inventories of property damage and inventory costs in inflation and soft computer techniques {Singh, et. al. (71, 72)}. Delayed control of alcohol supply and particle refinement and green cement supply system and inflation by particle enhancement and electronic inventory system and distribution center by genetic computations {Kumar, et. al. (73, 74, 75)}. Depreciation example at two stores and warehouses based on inventory using one genetic stock and one vehicle stock for demand and inflation inventory with two distribution centers using genetic stock {Chauhan and Yadav (76, 77)}. Analysis of marble Improvement of industrial reserves based on genetic technology and improvement of multiple particles {Pandey, et. al. (78)} The white wine industry in supply chain management through nerve networks {Ahlawat, et. al. (79)}. The best policy to import damaged goods immediately and pay for conditional delays under the supervision of two warehouses {Singh, et. al. (80)}.

## 5. Simulated Annealing Based Green Supply Chain Inventory Optimization Analysis

To be the most effective in controlling the dairy industry vegetable production, the main objective is to predict where, why and how it should be processed and by the way such predictions should be made here. The proposed approach could provide appropriate levels of investment that will be sustained in the near future, reducing the cost of the green grass production process for the dairy industry. The design of the production system is divided into three parts that will be improved

Green Producer of Dairy Industry
↓
Green Storage of Dairy Industry
↓
Green Agents of Dairy Industry

Fig. 1. Three stage Green supply chain（Studied model）

In this figure 1. The manufacturer supplies the various dairy processors and determines how to deliver it to the dairy industry and how to shift manual investment to the dairy industry. The proposed approach aims to determine the specific product to be targeted and the number of commodities to be held by the various members of the consumer electronics suppliers and the method also examines the level of stocks.

**Role of Human Resource as compared to Supply Chain Management**

Human Resource (HR) management and Supply Chain Management (SCM) are two distinct yet interconnected functions within an organization. While they serve different purposes, they both play critical roles in the success and efficiency of a company. Here's a comparison of their roles:

**1. Focus and Purpose:** Human Resource Management focuses on managing the human capital within an organization. This includes recruitment, training, performance management, employee relations, and ensuring compliance with labor laws and regulations. Supply Chain Management focuses on managing the flow of goods and services, including the movement and storage of raw materials, work-in-progress inventory, and finished goods, from the point of origin to the point of consumption. This involves procurement, logistics, operations, and distribution.

**2. Scope:** HR management deals primarily with internal stakeholders, namely employees. It focuses on optimizing the workforce to ensure that the organization has the right people, with the right skills, in the right positions. SCM involves both internal and external stakeholders, including suppliers, manufacturers, distributors, retailers, and customers. It encompasses a broader network and aims to streamline processes across the entire supply chain to enhance efficiency and meet customer demand.

**3. Strategic Importance:** HR management is crucial for building and maintaining a motivated, skilled, and engaged workforce. It contributes to organizational success by aligning human capital with strategic goals and fostering a positive work culture. SCM is essential for achieving operational excellence and maintaining a competitive edge. An effective supply chain ensures timely delivery of quality products or services to customers while minimizing costs and risks.

**4. Challenges:** HR management faces challenges such as talent acquisition and retention, skills shortages, diversity and inclusion, managing organizational change, and compliance with labor regulations. SCM faces challenges such as supply chain disruptions, inventory management, demand forecasting, supplier relationship management, globalization, and sustainability.

**5. Integration:** While HR and SCM are distinct functions, they are closely interconnected. Effective HR management can contribute to a more efficient supply chain by ensuring that the workforce is adequately trained, motivated, and aligned with supply chain objectives. Similarly, SCM practices can impact HR management by influencing workforce planning, job roles, and performance expectations.

In summary, while HR management and SCM have different focuses and responsibilities within an organization, both are critical for operational success. Collaboration and alignment between these functions are essential for optimizing organizational performance and achieving strategic objectives.

Contrary to popular belief, human resources (HR) is not just a job to deal with people. It has many elements that will be considered a center, in all companies. But for whatever reason, many companies still don't understand the full potential of HR work. Most of the time, HR doesn't get the value or power it deserves because the company isn't clear about what to expect. Due to this lack of clarity, HR is entrusted with an impossible goal and cannot be explained in some cases, so it seems that HR is the recipient of all criticism and problems.

Furthermore, the quality of talent in human resources projects is not a hallmark either. This is expected because they adapt to expectations and expectations of uncertainty. As a result, they were unable to clarify their position or explain their contribution to the business.

Human resource activities in the manufacturing industry also face a similar fate. Here we will discuss the important role that HR can play when it comes to the supply chain.

1. Access to natural resources -

2. Switch from raw materials to finished products

3. Consciousness -

4. Check the quality and check the quality

5. Maintain the balance of transactions

6. SCM can benefit from using HRM services internally

From the previous discussions, we saw that there are significant similarities between the SCM function and the HRM function. In fact, SCM can use the best human resource management to better manage its operations.

1. The use of human resource management services can be connected to a link in the chain

2. The effective use of "people"

3. Advantages of the human resources strategy

Job analysis
↓
Planning
↓
Selection
↓
Career development
↓
Training
↓
Termination of employment
↓
Creativity
↓
Indenting leadership potential
↓
Information

Fig. 2. The Role of Human Factors in Supply Chain

## 6. Simulated Annealing

Simulated Annealing is a heuristic optimization algorithm inspired by the process of annealing in metallurgy. It is used to find approximate solutions to optimization problems, particularly in situations where finding an exact solution is computationally impractical. Simulated Annealing is widely applied in various fields, including combinatorial optimization, engineering design, and machine learning. Here's how it works:

**1. Initialization:** Simulated Annealing starts with an initial solution to the optimization problem. This solution can be generated randomly or through some heuristic method.

**2. Objective Function:** The algorithm defines an objective function that evaluates the quality of a solution. This function quantifies how close a solution is to the optimal solution, with lower values indicating better solutions.

**3. Temperature Schedule:** Simulated Annealing introduces the concept of temperature, which controls the probability of accepting worse solutions during the search process. Initially, the temperature is set high, allowing the algorithm to explore a wide range of solutions, including potentially worse ones. As the algorithm progresses, the temperature gradually decreases according to a predefined schedule.

**4. Neighbor Generation:** At each iteration, the algorithm generates a neighboring solution by making small modifications to the current solution. These modifications can involve swapping elements, adding or removing elements, or other local changes depending on the problem domain.

**5. Acceptance Probability:** The algorithm evaluates the neighboring solution using the objective function and compares its quality to the current solution. If the neighboring solution is better, it is always accepted. If it is worse, the algorithm may still accept it with a certain probability, determined by the acceptance probability formula:

\[ P(\text{accept}) = e^{-\Delta E / T} \]

Where:

- \( \Delta E \) is the change in objective function value between the current and neighboring solutions.

- \( T \) is the current temperature.

As the temperature decreases, the acceptance probability decreases, leading the algorithm to gradually converge towards better solutions.

**6. Termination Criterion:** Simulated Annealing continues iterating until a termination criterion is met, such as reaching a maximum number of iterations, achieving a predefined objective function value, or running out of computational resources.

**7. Final Solution:** The algorithm outputs the best solution found during the search process, which may be an approximate solution to the optimization problem.

Simulated Annealing is known for its ability to escape local optima and explore the solution space effectively, making it particularly useful for complex optimization problems with non-convex or discontinuous objective functions. However, the performance of the algorithm depends on the choice of parameters such as the temperature schedule and neighbor generation strategy, which may require tuning for different problem instances.

## 7. Results and Discussions

Improved design of a limited edition materials management system in the Management chain based on a design platform developed with the help of MATLAB. Computational measurements for various members of the production chain, the private milk processing industry, the private milk processing industry and the expert dairy industry representative in industrial milk processing equipment produced using the MATLAB script, and this set of data is used to assess impact. milk thistle. Table 1 lists some examples of data sets used in the implementation. In Table 1 about 5 data sets are presented and are taken as data from the previous period.

**Table 1:- Some 6 Data sets are givenare assumed to be records in the previous period**

| S.N. | **Green Producerof Dairy Industry components industry** | **Green Storage of Dairy Industry components industry** | **Green Agentsof Dairy Industry components industry** |
|---|---|---|---|
| 1 | 159 | 215 | 394 |
| 2 | 149 | 216 | 385 |
| 3 | 138 | 210 | 376 |
| 4 | 124 | 219 | 368 |
| 5 | 116 | 217 | 350 |
| 6 | 138 | 210 | 376 |

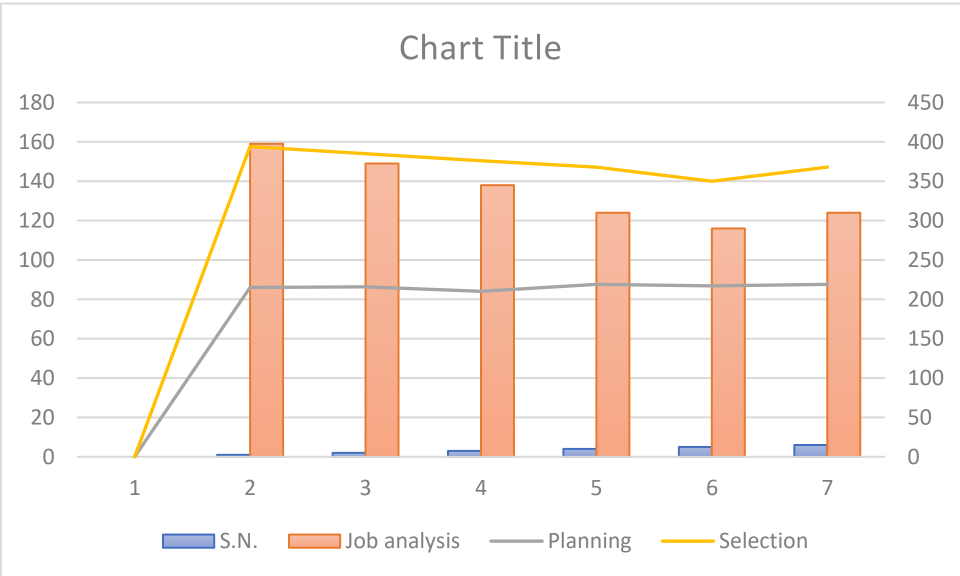


**Fig 1:- Some 6 Data sets are givenare assumed to be records in the previous period**

**Table 2:- Some 6 Data sets are givenare assumed to be records in the previous period**

| S.N. | Job analysis | Planning | Selection | Career development | Training | Termination of employment | Creativity | Indenting leadership potential | Information |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 159 | 215 | 394 | 159 | 215 | 394 | 159 | 215 | 215 |
| 2 | 149 | 216 | 385 | 149 | 216 | 385 | 149 | 216 | 216 |
| 3 | 138 | 210 | 376 | 138 | 210 | 376 | 138 | 210 | 210 |
| 4 | 124 | 219 | 368 | 124 | 219 | 368 | 124 | 219 | 219 |
| 5 | 116 | 217 | 350 | 116 | 217 | 350 | 116 | 217 | 217 |
| 6 | 124 | 219 | 368 | 124 | 219 | 368 | 124 | 219 | 219 |

**Table 2:- Some 6 Data sets are given are assumed to be records in the previous period**

## 8. Conclusion

In conclusion, Simulated Annealing stands as a powerful heuristic optimization algorithm, offering a versatile approach to tackling complex optimization problems across various domains. Its ability to efficiently explore solution spaces, escape local optima, and approximate near-optimal solutions has made it a valuable tool in fields such as combinatorial optimization, engineering design, and machine learning.

Through the process of simulated annealing, inspired by the metallurgical annealing process, the algorithm navigates the solution landscape by iteratively refining candidate solutions, guided by a temperature schedule that controls the probability of accepting worse solutions. This enables Simulated Annealing to balance exploration and exploitation effectively, gradually converging towards promising regions of the solution space while avoiding premature convergence to suboptimal solutions.

In practical applications, Simulated Annealing has demonstrated its efficacy in addressing optimization challenges where finding exact solutions is computationally infeasible or prohibitively expensive. By leveraging Simulated Annealing, organizations can enhance decision-making processes, optimize resource allocation, and improve system performance in diverse domains, ranging from logistics and supply chain management to telecommunications and manufacturing.

However, it is essential to acknowledge that Simulated Annealing is not without its limitations. The algorithm's performance can be sensitive to the choice of parameters, including the temperature schedule, neighbor generation strategy, and termination criteria. Moreover, while Simulated Annealing excels at exploring large solution spaces and escaping local optima, it may struggle with highly multimodal or discontinuous objective functions, requiring careful problem formulation and parameter tuning to achieve satisfactory results.

In light of these considerations, future research efforts may focus on advancing Simulated Annealing techniques, exploring hybrid approaches that integrate it with other optimization methods, such as genetic algorithms or particle swarm optimization, and developing adaptive algorithms capable of dynamically adjusting parameters based on problem characteristics and solution progress.

Overall, Simulated Annealing represents a valuable addition to the arsenal of optimization tools available to researchers and practitioners, offering a robust framework for addressing complex optimization challenges and driving innovation across a wide range of applications. With continued refinement and exploration, Simulated Annealing is poised to remain a cornerstone of heuristic optimization methodologies, enabling organizations to unlock new insights, enhance efficiency, and achieve sustainable competitive advantages in an increasingly complex and dynamic world.

**References:**


1. Yadav, A.S., Bansal, K.K., Shivani, Agarwal, S. And Vanaja, R. (2020) FIFO in Green Supply Chain Inventory Model of Electrical Components Industry With Distribution Centres Using Particle Swarm Optimization. Advances in Mathematics: Scientific Journal. 9 (7), 5115–5120.
2. Yadav, A.S., Kumar, A., Agarwal, P., Kumar, T. And Vanaja, R. (2020) LIFO in Green Supply Chain Inventory Model of Auto-Components Industry with Warehouses Using Differential Evolution. Advances in Mathematics: Scientific Journal, 9 no.7, 5121–5126.
3. Yadav, A.S., Abid, M., Bansal, S., Tyagi, S.L. And Kumar, T. (2020) FIFO & LIFO in Green Supply Chain Inventory Model of Hazardous Substance Components Industry with Storage Using Simulated Annealing. Advances in Mathematics: Scientific Journal, 9 no.7, 5127–5132.
4. Yadav, A.S., Tandon, A. and Selva, N.S. (2020) National Blood Bank Centre Supply Chain Management For Blockchain Application Using Genetic Algorithm. International Journal of Advanced Science and Technology Vol. 29, No. 8s, 1318-1324.

5. Yadav, A.S., Selva, N.S. and Tandon, A. (2020) Medicine Manufacturing Industries supply chain management for Blockchain application using artificial neural networks, International Journal of Advanced Science and Technology Vol. 29, No. 8s, 1294-1301.

6. Yadav, A.S., Ahlawat, N., Agarwal, S., Pandey, T. and Swami, A. (2020) Red Wine Industry of Supply Chain Management for Distribution Center Using Neural Networks, Test Engraining & Management, Volume 83 Issue: March – April, 11215 – 11222.

7. Yadav, A.S., Pandey, T., Ahlawat, N., Agarwal, S. and Swami, A. (2020) Rose Wine industry of Supply Chain Management for Storage using Genetic Algorithm. Test Engraining & Management, Volume 83 Issue: March – April, 11223 – 11230.

8. Yadav, A.S., Ahlawat, N., Sharma, N., Swami, A. And Navyata (2020) Healthcare Systems of Inventory Control For Blood Bank Storage With Reliability Applications Using Genetic Algorithm. Advances in Mathematics: Scientific Journal 9 no.7, 5133–5142.

9. Yadav, A.S., Dubey, R., Pandey, G., Ahlawat, N. and Swami, A. (2020) Distillery Industry Inventory Control for Storage with Wastewater Treatment & Logistics Using Particle Swarm Optimization Test Engraining & Management Volume 83 Issue: May – June, 15362-15370.

10. Yadav, A.S., Ahlawat, N., Dubey, R., Pandey, G. and Swami, A. (2020) Pulp and paper industry inventory control for Storage with wastewater treatment and Inorganic composition using genetic algorithm (ELD Problem). Test Engraining & Management, Volume 83 Issue: May – June, 15508-15517.

11. Yadav, A.S., Pandey, G., Ahlawat, N., Dubey, R. and Swami, A. (2020) Wine Industry Inventory Control for Storage with Wastewater Treatment and Pollution Load Using Ant Colony Optimization Algorithm, Test Engraining & Management, Volume 83 Issue: May – June, 15528-15535.

12. Yadav, A.S., Navyata, Sharma, N., Ahlawat, N. and Swami, A. (2020) Reliability Consideration costing method for LIFO Inventory model with chemical industry warehouse. International Journal of Advanced Trends in Computer Science and Engineering, Volume 9 No 1, 403-408.

13. Yadav, A.S., Bansal, K.K., Kumar, J. and Kumar, S. (2019) Supply Chain Inventory Model For Deteriorating Item With Warehouse & Distribution Centres Under Inflation. International Journal of Engineering and Advanced Technology, Volume-8, Issue-2S2, 7-13.

14. Yadav, A.S., Kumar, J., Malik, M. and Pandey, T. (2019) Supply Chain of Chemical Industry For Warehouse With Distribution Centres Using Artificial Bee Colony Algorithm. International Journal of Engineering and Advanced Technology, Volume-8, Issue-2S2, 14-19.

15. Yadav, A.S., Navyata, Ahlawat, N. and Pandey, T. (2019) Soft computing techniques based Hazardous Substance Storage Inventory Model for decaying Items and Inflation using Genetic Algorithm. International Journal of Advance Research and Innovative Ideas in Education, Volume 5 Issue 9, 1102-1112.

16. Yadav, A.S., Navyata, Ahlawat, N. and Pandey, T. (2019) Hazardous Substance Storage Inventory Model for decaying Items using Differential Evolution. International Journal of Advance Research and Innovative Ideas in Education, Volume 5 Issue 9, 1113-1122.

17. Yadav, A.S., Navyata, Ahlawat, N. and Pandey, T. (2019) Probabilistic inventory model based Hazardous Substance Storage for decaying Items and Inflation using Particle Swarm Optimization. International Journal of Advance Research and Innovative Ideas in Education, Volume 5 Issue 9, 1123-1133.

18. Yadav, A.S., Navyata, Ahlawat, N. and Pandey, T. (2019) Reliability Consideration based Hazardous Substance Storage Inventory Model for decaying Items using Simulated Annealing. International Journal of Advance Research and Innovative Ideas in Education, Volume 5 Issue 9, 1134-1143.

19. Yadav, A.S., Swami, A. and Kher, G. (2019) Blood bank supply chain inventory model for blood collection sites and hospital using genetic algorithm. Selforganizology, Volume 6 No.(3-4), 13-23.

20. Yadav, A.S., Swami, A. and Ahlawat, N. (2018) A Green supply chain management of Auto industry for inventory model with distribution centers using Particle Swarm Optimization. Selforganizology, Volume 5 No. (3-4)

21. Yadav, A.S., Ahlawat, N., and Sharma, S. (2018) Hybrid Techniques of Genetic Algorithm for inventory of Auto industry model for deteriorating items with two warehouses. International Journal of Trend in Scientific Research and Development, Volume 2 Issue 5, 58-65.

22. Yadav, A.S., Swami, A. and Gupta, C.B. (2018) A Supply Chain Management of Pharmaceutical For Deteriorating Items Using Genetic Algorithm. International Journal for Science and Advance Research In Technology, Volume 4 Issue 4, 2147-2153.

23. Yadav, A.S., Maheshwari, P., Swami, A., and Pandey, G. (2018) A supply chain management of chemical industry for deteriorating items with warehouse using genetic algorithm. Selforganizology, Volume 5 No.1-2, 41-51.

24. Yadav, A.S., Garg, A., Gupta, K. and Swami, A. (2017) Multi-objective Genetic algorithm optimization in Inventory model for deteriorating items with shortages using Supply Chain management. IPASJ International journal of computer science, Volume 5, Issue 6, 15-35.

25. Yadav, A.S., Garg, A., Swami, A. and Kher, G. (2017) A Supply Chain management in Inventory Optimization for deteriorating items with Genetic algorithm. International Journal of Emerging Trends & Technology in Computer Science, Volume 6, Issue 3, 335-352.

26. Yadav, A.S., Maheshwari, P., Garg, A., Swami, A. and Kher, G. (2017) Modeling& Analysis of Supply Chain management in Inventory Optimization for deteriorating items with Genetic algorithm and Particle Swarm optimization. International Journal of Application or Innovation in Engineering & Management, Volume 6, Issue 6, 86-107.

27. Yadav, A.S., Garg, A., Gupta, K. and Swami, A. (2017) Multi-objective Particle Swarm optimization and Genetic algorithm in Inventory model for deteriorating items with shortages using Supply Chain management. International Journal of Application or Innovation in Engineering & Management, Volume 6, Issue 6, 130-144.

28. Yadav, A.S., Swami, A. and Kher, G. (2017) Multi-Objective Genetic Algorithm Involving Green Supply Chain Management International Journal for Science and Advance Research In Technology, Volume 3 Issue 9, 132-138.

29. Yadav, A.S., Swami, A., Kher, G. (2017) Multi-Objective Particle Swarm Optimization Algorithm Involving Green Supply Chain Inventory Management. International Journal for Science and Advance Research In Technology, Volume 3 Issue, 240-246.

30. Yadav, A.S., Swami, A. and Pandey, G. (2017) Green Supply Chain Management for Warehouse with Particle Swarm Optimization Algorithm. International Journal for Science and Advance Research in Technology, Volume 3 Issue 10, 769-775.

31. Yadav, A.S., Swami, A., Kher, G. and Garg, A. (2017) Analysis of seven stages supply chain management in electronic component inventory optimization for warehouse with economic load dispatch using genetic algorithm. Selforganizology, 4 No.2, 18-29 .

32. Yadav, A.S., Maheshwari, P., Swami, A. and Garg, A. (2017) Analysis of Six Stages Supply Chain management in Inventory Optimization for warehouse with Artificial bee colony algorithm using Genetic Algorithm. Selforganizology, Volume 4 No.3, 41-51.

33. Yadav, A.S., Swami, A., Gupta, C.B. and Garg, A. (2017) Analysis of Electronic component inventory Optimization in Six Stages Supply Chain management for warehouse with ABC using genetic algorithm and PSO. Selforganizology, Volume 4 No.4, 52-64.

34. Yadav, A.S., Maheshwari, P. and Swami, A. (2016) Analysis of Genetic Algorithm and Particle Swarm Optimization for warehouse with Supply Chain management in Inventory control. International Journal of Computer Applications, Volume 145 –No.5, 10-17.

35. Yadav, A.S., Swami, A. and Kumar, S. (2018) Inventory of Electronic components model for deteriorating items with warehousing using Genetic Algorithm. International Journal of Pure and Applied Mathematics, Volume 119 No. 16, 169-177.

36. Yadav, A.S., Johri, M., Singh, J. and Uppal, S. (2018) Analysis of Green Supply Chain Inventory Management for Warehouse With Environmental Collaboration and Sustainability Performance Using Genetic Algorithm. International Journal of Pure and Applied Mathematics, Volume 118 No. 20, 155-161.

37. Yadav, A.S., Ahlawat, N., Swami, A. and Kher, G. (2019) Auto Industry inventory model for deteriorating items with two warehouse and Transportation Cost using Simulated Annealing Algorithms. International Journal of Advance Research and Innovative Ideas in Education, Volume 5,Issue 1, 24-33.

38. Yadav, A.S., Ahlawat, N., Swami, A. and Kher, G. (2019) A Particle Swarm Optimization based a two-storage model for deteriorating items with Transportation Cost and Advertising Cost: The Auto Industry. International Journal of Advance Research and Innovative Ideas in Education, Volume 5, Issue 1, 34-44.

39. Yadav, A.S., Ahlawat, N., and Sharma, S. (2018) A Particle Swarm Optimization for inventory of Auto industry model for two warehouses with deteriorating items. International Journal of Trend in Scientific Research and Development, Volume 2 Issue 5, 66-74.

40. Yadav, A.S., Swami, A. and Kher, G. (2018) Particle Swarm optimization of inventory model with two-warehouses. Asian Journal of Mathematics and Computer Research, Volume 23 No.1, 17-26.

41. Yadav, A.S., Maheshwari, P.,, Swami, A. and Kher, G. (2017) Soft Computing Optimization of Two Warehouse Inventory Model With Genetic Algorithm. Asian Journal of Mathematics and Computer Research, Volume 19 No.4, 214-223.

42. Yadav, A.S., Swami, A., Kumar, S. and Singh, R.K. (2016) Two-Warehouse Inventory Model for Deteriorating Items with Variable Holding Cost, Time-Dependent Demand and Shortages. IOSR Journal of Mathematics, Volume 12, Issue 2 Ver. IV, 47-53.

43. Yadav, A.S., Sharam, S. and Swami, A. (2016) Two Warehouse Inventory Model with Ramp Type Demand and Partial Backordering for Weibull Distribution Deterioration. International Journal of Computer Applications, Volume 140 –No.4, 15-25.

44. Yadav, A.S., Swami, A. and Singh, R.K. (2016) A two-storage model for deteriorating items with holding cost under inflation and Genetic Algorithms. International Journal of Advanced Engineering, Management and Science, Volume -2, Issue-4, 251-258.

45. Yadav, A.S., Swami, A., Kher, G. and Kumar, S. (2017) Supply Chain Inventory Model for Two Warehouses with Soft Computing Optimization. International Journal of Applied Business and Economic Research, Volume 15 No 4, 41-55.

46. Yadav, A.S., Rajesh Mishra, Kumar, S. and Yadav, S. (2016) Multi Objective Optimization for Electronic Component Inventory Model & Deteriorating Items with Two-warehouse using Genetic Algorithm. International Journal of Control Theory and applications, Volume 9 No.2, 881-892.

47. Yadav, A.S., Gupta, K., Garg, A. and Swami, A. (2015) A Soft computing Optimization based Two Ware-House Inventory Model for Deteriorating Items with shortages using Genetic Algorithm. International Journal of Computer Applications, Volume 126 – No.13, 7-16.
48. Yadav, A.S., Gupta, K., Garg, A. and Swami, A. (2015) A Two Warehouse Inventory Model for Deteriorating Items with Shortages under Genetic Algorithm and PSO. International Journal of Emerging Trends & Technology in Computer Science, Volume 4, Issue 5(2), 40-48.
49. Yadav, A.S. Swami, A., and Kumar, S. (2018) A supply chain Inventory Model for decaying Items with Two Ware-House and Partial ordering under Inflation. International Journal of Pure and Applied Mathematics, Volume 120 No 6, 3053-3088.
50. Yadav, A.S. Swami, A. and Kumar, S. (2018) An Inventory Model for Deteriorating Items with Two warehouses and variable holding Cost. International Journal of Pure and Applied Mathematics, Volume 120 No 6, 3069-3086.
51. Yadav, A.S., Taygi, B., Sharma, S. and Swami, A. (2017) Effect of inflation on a two-warehouse inventory model for deteriorating items with time varying demand and shortages. International Journal Procurement Management, Volume 10, No. 6, 761-775.
52. Yadav, A.S., R. P. Mahapatra, Sharma, S. and Swami, A. (2017) An Inflationary Inventory Model for Deteriorating items under Two Storage Systems. International Journal of Economic Research, Volume 14 No.9, 29-40.
53. Yadav, A.S., Sharma, S. and Swami, A. (2017) A Fuzzy Based Two-Warehouse Inventory Model For Non instantaneous Deteriorating Items With Conditionally Permissible Delay In Payment. International Journal of Control Theory And Applications, Volume 10 No.11, 107-123.
54. Yadav, A.S. and Swami, A. (2018) Integrated Supply Chain Model for Deteriorating Items With Linear Stock Dependent Demand Under Imprecise And Inflationary Environment. International Journal Procurement Management, Volume 11 No 6, 684-704.
55. Yadav, A.S. and Swami, A. (2018) A partial backlogging production-inventory lot-size model with time-varying holding cost and weibull deterioration. International Journal Procurement Management, Volume 11, No. 5, 639-649.
56. Yadav, A.S. and Swami, A. (2013) A Partial Backlogging Two-Warehouse Inventory Models For Decaying Items With Inflation. International Organization of Scientific Research Journal of Mathematics, Issue 6, 69-78.
57. Yadav, A.S. and Swami, A. (2019) An inventory model for non-instantaneous deteriorating items with variable holding cost under two-storage. International Journal Procurement Management, Volume 12 No 6, 690-710.
58. Yadav, A.S. and Swami, A. (2019) A Volume Flexible Two-Warehouse Model with Fluctuating Demand and Holding Cost under Inflation. International Journal Procurement Management, Volume 12 No 4, 441-456.
59. Yadav, A.S. and Swami, A. (2014) Two-Warehouse Inventory Model for Deteriorating Items with Ramp-Type Demand Rate and Inflation. American Journal of Mathematics and Sciences Volume 3 No-1, 137-144.
60. Yadav, A.S. and Swami, A. (2013) Effect of Permissible Delay on Two-Warehouse Inventory Model for Deteriorating items with Shortages. International Journal of Application or Innovation in Engineering & Management, Volume 2, Issue 3, 65-71.
61. Yadav, A.S. and Swami, A. (2013) A Two-Warehouse Inventory Model for Decaying Items with Exponential Demand and Variable Holding Cost. International of Inventive Engineering and Sciences, Volume-1, Issue-5, 18-22.
62. Yadav, A.S. and Kumar, S. (2017) Electronic Components Supply Chain Management for Warehouse with Environmental Collaboration & Neural Networks. International Journal of Pure and Applied Mathematics, Volume 117 No. 17, 169-177.
63. Yadav, A.S. (2017) Analysis of Seven Stages Supply Chain Management in Electronic Component Inventory Optimization for Warehouse with Economic Load Dispatch Using GA and PSO. Asian Journal Of Mathematics And Computer Research, volume 16 No.4, 208-219.
64. Yadav, A.S. (2017) Analysis Of Supply Chain Management In Inventory Optimization For Warehouse With Logistics Using Genetic Algorithm International Journal of Control Theory And Applications, Volume 10 No.10, 1-12 .
65. Yadav, A.S. (2017) Modeling and Analysis of Supply Chain Inventory Model with two-warehouses and Economic Load Dispatch Problem Using Genetic Algorithm. International Journal of Engineering and Technology, Volume 9 No 1, 33-44.
66. Swami, A., Singh, S.R., Pareek, S. and Yadav, A.S. (2015) Inventory policies for deteriorating item with stock dependent demand and variable holding costs under permissible delay in payment. International Journal of Application or Innovation in Engineering & Management, Volume 4, Issue 2, 89-99.
67. Swami, A., Pareek, S., Singh S.R. and Yadav, A.S. (2015) Inventory Model for Decaying Items with Multivariate Demand and Variable Holding cost under the facility of Trade-Credit. International Journal of Computer Application, 18-28.
68. Swami, A., Pareek, S., Singh, S.R. and Yadav, A.S. (2015) An Inventory Model With Price Sensitive Demand, Variable Holding Cost And Trade-Credit Under Inflation. International Journal of Current Research, Volume 7, Issue, 06, 17312-17321.

69. Gupta, K., Yadav, A.S., Garg, A. and Swami, A. (2015) A Binary Multi-Objective Genetic Algorithm &PSO involving Supply Chain Inventory Optimization with Shortages, inflation. International Journal of Application or Innovation in Engineering & Management, Volume 4, Issue 8, 37-44.
70. Gupta, K., Yadav, A.S., Garg, A., (2015) Fuzzy-Genetic Algorithm based inventory model for shortages and inflation under hybrid & PSO. IOSR Journal of Computer Engineering, Volume 17, Issue 5, Ver. I , 61-67.
71. Singh, R.K., Yadav, A.S. and Swami, A. (2016) A Two-Warehouse Model for Deteriorating Items with Holding Cost under Particle Swarm Optimization. International Journal of Advanced Engineering, Management and Science, Volume -2, Issue-6, 858-864.
72. Singh, R.K., Yadav, A.S. and Swami, A. (2016) A Two-Warehouse Model for Deteriorating Items with Holding Cost under Inflation and Soft Computing Techniques. International Journal of Advanced Engineering, Management and Science, Volume -2, Issue-6, 869-876.
73. Kumar, S., Yadav, A.S., Ahlawat, N. and Swami, A. (2019) Supply Chain Management of Alcoholic Beverage Industry Warehouse with Permissible Delay in Payments using Particle Swarm Optimization. International Journal for Research in Applied Science and Engineering Technology, Volume 7 Issue VIII, 504-509.
74. Kumar, S., Yadav, A.S., Ahlawat, N. and Swami, A. (2019) Green Supply Chain Inventory System of Cement Industry for Warehouse with Inflation using Particle Swarm Optimization. International Journal for Research in Applied Science and Engineering Technology, Volume 7 Issue VIII, 498-503.
75. Kumar, S., Yadav, A.S., Ahlawat, N. and Swami, A. (2019) Electronic Components Inventory Model for Deterioration Items with Distribution Centre using Genetic Algorithm. International Journal for Research in Applied Science and Engineering Technology, Volume 7 Issue VIII, 433-443.
76. Chauhan, N. and Yadav, A.S. (2020) An Inventory Model for Deteriorating Items with Two-Warehouse & Stock Dependent Demand using Genetic algorithm. International Journal of Advanced Science and Technology, Vol. 29, No. 5s, 1152-1162 .
77. Chauhan, N. and Yadav, A.S. (2020) Inventory System of Automobile for Stock Dependent Demand & Inflation with Two-Distribution Center Using Genetic Algorithm. Test Engraining & Management, Volume 83, Issue: March – April, 6583 – 6591.
78. Pandey, T., Yadav, A.S. and Medhavi Malik (2019) An Analysis Marble Industry Inventory Optimization Based on Genetic Algorithms and Particle swarm optimization. International Journal of Recent Technology and Engineering Volume-7, Issue-6S4, 369-373.
79. Ahlawat, N., Agarwal, S., Pandey, T., Yadav, A.S., Swami, A. (2020) White Wine Industry of Supply Chain Management for Warehouse using Neural Networks Test Engraining & Management, Volume 83, Issue: March – April, 11259 – 11266.
80. Singh, S. Yadav, A.S. and Swami, A. (2016) An Optimal Ordering Policy For Non-Instantaneous Deteriorating Items With Conditionally Permissible Delay In Payment Under Two Storage Management International Journal of Computer Applications, Volume 147 –No.1, 16-25.