FMDB *Transactions on Sustainable Management Letters*

A Customer-Based Supply Chain Management Advance Technology in the Process Industry

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Abstract: This study is addressed in two parts: the reinforcement learning algorithm and the nearest neighbourhood algorithm. The nearest neighbourhood algorithm paves the way to find the shortest trans-partition distance among the province, and the reinforcement learning algorithm gives an optimal working plan by reducing the workload, transfer cost and maximum profit. The proposed model explains how the operations were carried out to reduce the expenditure. The material is collected from the customer on the doorstep by the retailers. The collected materials were transported to the nearby regional distribution centre and transferred to the national distribution centre. This is the first line of the process. The materials stored in the national distribution centre are taken to regional distribution centres and later distributed to the customers by retailers. Thus, forming separate pick-up points based on the study of track records helps improve service quality and decrease transportation costs. To explain this model here and consider it, Madurai is the national distribution centre. It is divided into several regional distribution centres, and each regional distribution centre is subdivided into retailers. Thus, the process uses these working bodies to collect and deliver materials. The collection process is scheduled and divided based on the availability of the source, which is calculated using a Reinforcement learning algorithm. The result shows that it reduces expenditure by 10% compared to the previously existing model and increases the percentage of profit earned.

Keywords: Reinforcement Learning Algorithm; Nearest Neighbourhood Algorithm; Courier Industry; Integrated Supply Chain Networks; Customer and Retailer; Regional Distribution Centre; National Distribution Centre; Processing Industry.

Received on: 19/08/2023, **Revised on:** 02/11/2023, **Accepted on:** 11/12/2023, **Published on:** 26/12/2023

Cite as: T. Anand, R. S. Pandian, M. Farouk, D. K. Sachani, and P. Sudha, "A Customer-Based Supply Chain Management Advance Technology in the Process Industry," *FMDB Transactions on Sustainable Management Letters*., vol. 1, no. 4, pp. 168-180, 2023.

1. Introduction

After many evolutions, the current process industry follows a model with four medium stages: Customer, Retailer, Regional Distribution Centre and National Distribution Center. These four stages act as the functional bodies of the process industry. The cost of transportation and other expenditures are unequally split by these functional bodies based on the requirements of each centre [1]. The cost of expenditures varies from each centre in ascending order. Thus, the customer spends the lowest fare of 10% on travel to the nearby retailer. The retailer has to spend 25% of the amount to transfer the courier material to the

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Regional Distribution Centre. The Regional Distribution Centre has to spend 30% of the cost to transport the materials received from various retailers to the National Distribution Centre, where the materials step forward to their respective destinations. Here, the National Distribution Centre has to spend the highest 35% percentage of overall cost to segregate and dispatch the materials from various regions to their respective destinations. This is the model that has been followed for many years. The model, in practice, shows that the customer has to travel and find a retailer to dispatch his material, for which he spends nearly 10% of the cost [2].

In the Proposed model, the cost spent by the customer to find a retailer is reduced to 0% by providing additional support for collecting the orders from a customer by the retailer, which will result in a good customer and retailer relationship and also increase the comfortability of the customer it has a result of increasing 2% more in the expenditure faced by the retailer and rest of 8% is profit [3]. The rest of the system acts like the system in practice. The retailer has to make direct contact with the customer to deliver the product at the same time, and he can collect the material which has to be dispatched from another customer, which decreases the cost spent by the customer, resulting in a decrease of 8% of the cost spent by the overall system. The customer hands the material directly to the retailer at the doorstep; the retailer has to spend 27% of the amount to collect and transfer the material from the customer to the regional distribution centre, and the regional distribution centre has to spend 30% of the cost to transport the materials received from various retailers to the National Distribution Centre where the materials step forward to their respective destinations [4]. Here, the National Distribution Centre has to spend 35% percentage of the overall cost to segregate and dispatch the materials from various regions to their respective destinations.

2. Objectives

The objectives of the present study are (Figures 1 and 2):

- To provide a full, satisfactory service to the customer without increasing the expense of the customer and the processing industry.
- To provide a door-to-door delivery and pick-up of the package from and to the customer.
- To provide a highly optimized system may change the systematic operation of the processing industry.
- To reduce the expenditure of the processing industry spends every year.
- Optimize the processing industry without causing any expenditure for practical implementation.
- The closed loop chain can be utilised by changing its features.
- To minimize the overall network cost of the processing industry.
- To create a forward and reverse network allowing customers to receive and send packages from their doorstep.

Figure 1: Overall Network (South Tamil Nadu, India)

Assumptions are given below:

- The area of the national distribution centre is known and variable. The impact area might change over time, so we assume it is variable.
- Demand for every unit time for a retail location in group "Ci" is an independent and identically distributed Poisson process with rate "λi."
    a) The order quantity "qr" is independent for all retailers.

b) The expected lead time for the NDC- RDC echelon is μ.
c) Cost amongst retailers and customers because economies depend on scale.
d) Transport costs among retailers and customers have

- The cost of opening a Regional Distribution Centre is denoted by.
- The area of influence for each Regional Distribution Centre within the cluster, where i = 1, 2, and 3 are natural numbers, is denoted by.
- For the given Cluster, the store density is.
- The demand rate for retail stores is denoted by.
- Let -length (planning horizon).
- Let is the Ordering quantity for the National Distribution Centre, and be the Ordering quantity for the Regional Distribution Centre.
- Inbound transportation cost for in cluster, where and
- j=1, 2, 3…N.
- We assume this to be the jth inbound transportation cost,
- Where b0….bn-1 with
- Transportation costs have to be considered here. Hence, we take a fixed transportation price per item.
- Variable transportation price is another side that has to be considered. Let it be.
- We assume this to be the factor which depends on the distance of the Regional Distribution Centre service region.
- Let and be ordering cost for retailer and inventory holding cost for National Distribution Centre, respectively.
- Similarly, let and be the ordering cost for the National Distribution Centre and Inventory holding cost for the Regional Distribution Centre, respectively.
- Each Regional Distribution Centre bears an Ordering cost. Let it be the expected lead time for the National Distribution Centre Customer echelon.
- A retailer must also bear the brunt of inventory holding costs, denoted as H_{ret}.

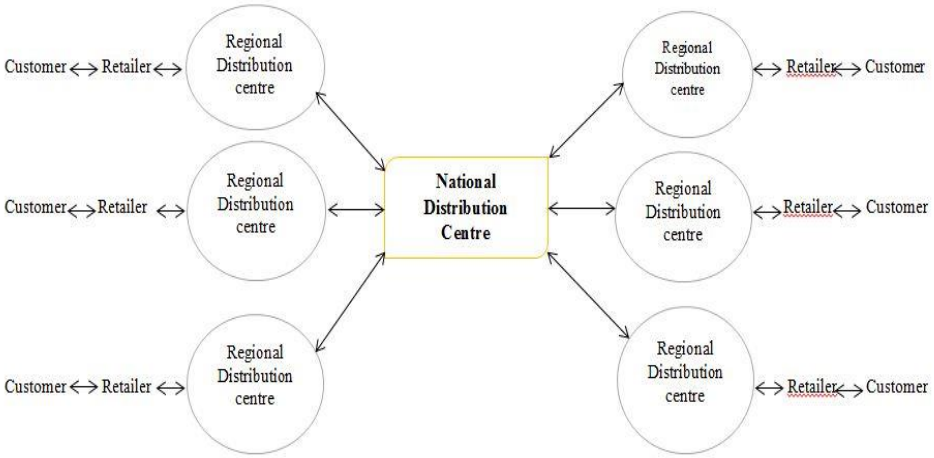

Figure 2: Multilevel Supply Chain Networks

$$C_{f_1} \rightarrow R_{f_1} \rightarrow D_{f_1} \rightarrow N_1 \rightarrow D_{R_1} \rightarrow R_{R_1} \rightarrow C_{R_1}$$

$$\underset{10\%}{C_{f_1}} \rightarrow \underset{25\%}{R_{f_1}} \rightarrow \underset{30\%}{D_{f_1}} \rightarrow \boxed{\underset{35\%}{N_1}} \rightarrow D_{R_1} \rightarrow R_{R_1} \rightarrow C_{R_1}$$

$$\underset{10\%}{C_{R_1}} \rightarrow \underset{25\%}{R_{R_1}} \rightarrow \underset{30\%}{D_{R_1}} \rightarrow \boxed{\underset{35\%}{N_1}} \rightarrow D_{f_1} \rightarrow R_{f_1} \rightarrow C_{f_1}$$

2.1. Syllabary

$C_{f_1} \rightarrow$ Customer Forward

$R_{f_1} \rightarrow$ Retailer Forward

$D_{f_1} \rightarrow$ Regional Distribution Centre Forward

$N_1 \rightarrow$ National Distribution Centre

$D_{R_1} \rightarrow$ Regional Distribution Centre Receiver

$R_{R_1} \rightarrow$ Retailer Receiver

$C_{R_1} \rightarrow$ Customer Receiver

2.2. Model Formulation

This model computes the parts of the full system cost as follows:
Facility Cost = $f_r \frac{c_i}{a_{r_i}}$

i) Inbound transportation cost (Phase-I)…….(1)
(Sending shipment from the customer to NDC) = $t_j \frac{l_i \mu_i \rho_i c_i}{q_{r_i}}$ ……. (2)

ii) Outbound transportation cost (Phase II)
(Shipping goods from NDC to customer)

NDC ordering cost = $\sum_{i=1}^{N} \left(q_n \frac{l_i \mu_i \rho_i c_i}{q_n} \right)$ …….. (3)

RDC ordering cost = $\sum_{i=1}^{N} (r_r \frac{l_i \mu_i \rho_i c_i}{q_r})$ ……. (4)

NDC inventory holding cost = $H_n (\frac{q_n}{2} + Z_\alpha \sqrt{\sum_{i=1}^{N} \tau \mu_i \rho_i c_i})$ …….. (5)

Where α=service level of NDC
RDC inventory holding cost = $\sum_{i=1}^{N} (H_r \frac{c_i}{a_{r_i}} \frac{q_r}{2})$ ……..... (6)
$\frac{c_i}{a_{r_i}} number\ of\ RDC\ in\ cluster(c_i)$, i =1,2,3…N.

The total network cost (A_{r_i}, Q_n, Q_r)= (1) + (2) + (3) + (4) + (5) + (6)

$$(A_{r_i}, Q_n, Q_r) = \sum_{i=1}^{N} (f_r \frac{c_i}{a_{r_i}}) + \sum_{i=1}^{N} (t_j \frac{l_i \mu_i \rho_i c_i}{q_{r_i}}) + \sum_{i=1}^{N} [(c_f + c_v F_r \sqrt{a_{r_i}})(l_i \mu_i \rho_i c_i)] + \sum_{i=1}^{N} \left(q_n \frac{l_i \mu_i \rho_i c_i}{q_n} \right)$$
$$+ \sum_{i=1}^{N} (r_r \frac{l_i \mu_i \rho_i c_i}{q_r}) + H_n (\frac{q_n}{2} + Z_\alpha \sqrt{\sum_{i=1}^{N} \tau \mu_i \rho_i c_i}) + \sum_{i=1}^{N} (H_r \frac{c_i}{a_{r_i}} \frac{q_r}{2}) \quad \text{…….} \quad (7)$$

$$C_{f_1} \leftrightarrows R_{f_1} \rightarrow D_{f_1} \rightarrow N_1 \rightarrow D_{R_1} \rightarrow R_{R_1} \leftrightarrows C_{R_1}$$

$$\underset{0\%}{C_{f_1}} \leftrightarrows \underset{32\%}{R_{f_1}} \rightarrow \underset{33\%}{D_{f_1}} \rightarrow \boxed{\underset{35\%}{N_1}} \rightarrow D_{R_1} \rightarrow R_{R_1} \leftrightarrows C_{R_1}$$

$$\underset{0\%}{C_{R_1}} \leftrightarrows \underset{32\%}{R_{R_1}} \rightarrow \underset{33\%}{D_{R_1}} \rightarrow \boxed{\underset{35\%}{N_1}} \rightarrow D_{f_1} \rightarrow R_{f_1} \leftrightarrows C_{f_1}$$

The pick-up and delivery process is combined into a single process, so the expense of transportation is reduced, and the customer's comfort is increased by reducing the work done by the customer. We can reduce expenditure by 10% compared to the previously existing model and increase the percentage of profit earned.

3. Methodology

Many algorithms have been proposed from the earlier stages of the processing industry, and many models have been proposed and have undergone many evolutions. But they all have a reduction in cost reduction. Now, it's time for the next evolution of methodology [5]. These methodologies were used together to formulate a new model to increase the efficiency of the processing industry (Figure 3). They are entitled to a producer, a supplier and a customer. They are: 1. Reinforcement Algorithm 2. Nearest Neighbor Algorithm.

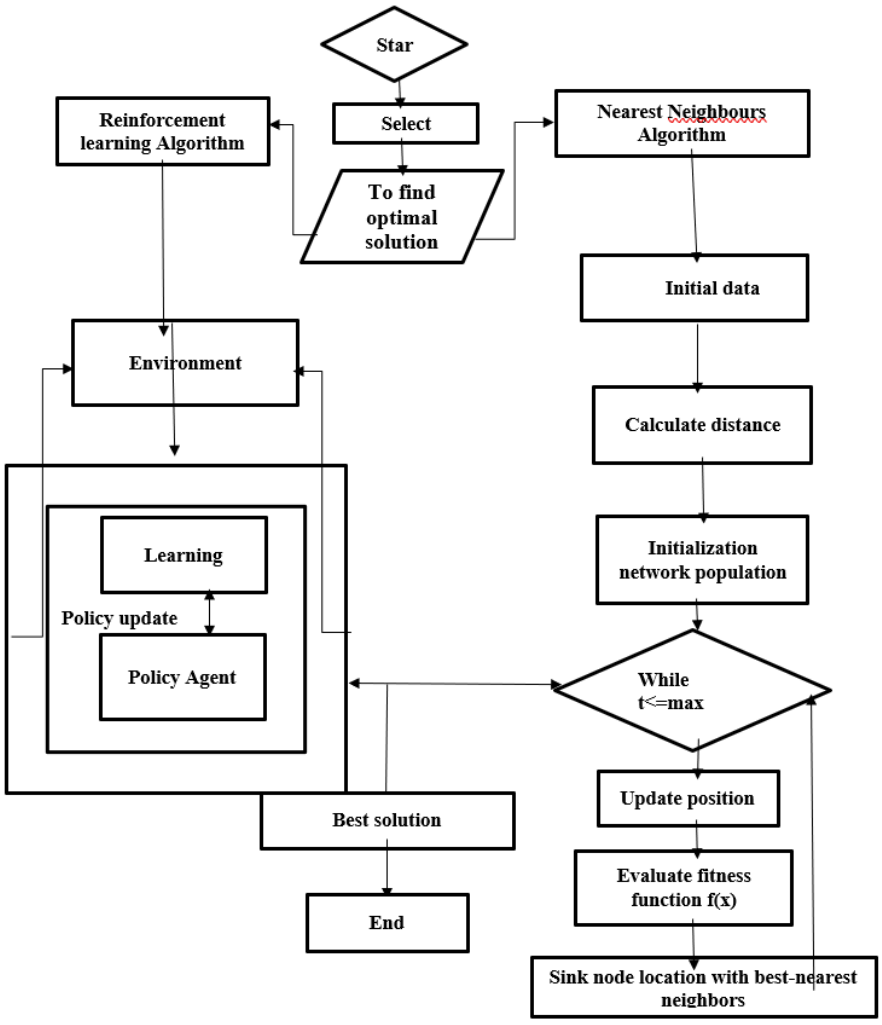

Figure 3: Methodology - Flowchart

4. Summary of Findings

The findings into a complete working model to provide a proper working model have taken Madurai as a national distribution centre, and the main places nearby Madurai are listed as regional distribution centres [6]. Each regional distribution centre is split under the control of retailers, and the number of retailers for a region is fixed based on need and analysed data [7]. In this model, we get a clear track record of the number of deliveries and pick-ups and other data like how much distance a retailer covers for a trip. In this summary, a few pick-up points were made based on the nearest neighbourhood algorithm, and the pick-up points were clustered into various divisions based on the reinforcement algorithm [8]. The pick-up points come under various retailers, split equally based on the shortest path. In this method, the variation between retailers and clustered regions is analysed. The findings intended to provide clear data about under what circumstances the profit will be maximum. The expenditure on various aspects like transport, construction and other things was minimal [9].

The analysed and formulated data will clearly explain the proposed model's efficiency [10]. Clustering pick-up points based on the track history offers a clear idea of how the process can be carried out (Table 1).

Table 1: Customer points Delivery and Pick up details of Thiruparankundram

S.NO	Customer Points (A)	Average Demand (g)		Max Tour Length (Km)	Retailers
		Delivery	Pick up		
1	A_1	16	23	2.64	R_1
2	A_2	72	92		
3	A_3	6	4		
4	A_4	68	70		
5	A_5	75	57		
6	A_6	5	7		
7	A_7	22	24	2.76	R_2
8	A_8	4	9		
9	A_9	8	10		
10	A_{10}	21	20		
11	A_{11}	31	43		
12	A_{12}	11	5	3.38	R_3
13	A_{13}	19	33		
14	A_{14}	32	37		
15	A_{15}	32	29		
16	A_{16}	39	42		
17	A_{17}	98	97	2.21	R_4
18	A_{18}	25	43		
19	A_{19}	36	39		
20	A_{20}	37	21		
21	A_{21}	68	25	3.04	R_5
22	A_{22}	35	32		
23	A_{23}	10	7		
24	A_{24}	14	17		
25	A_{25}	24	28		
26	A_{26}	8	10		
27	A_{27}	5	5		

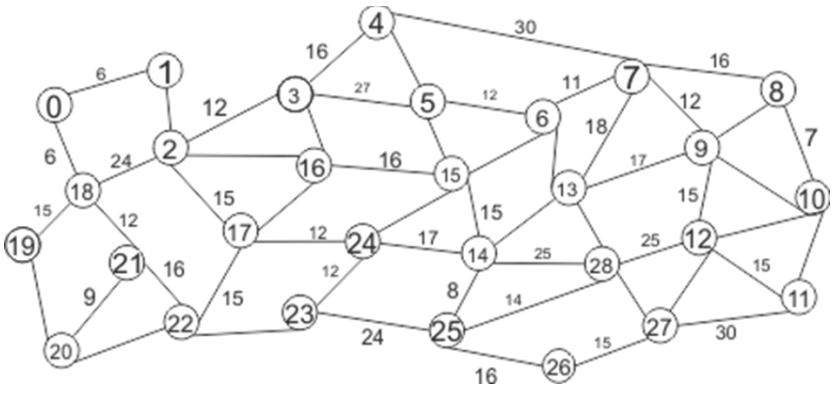

Figure 4: Thiruparankundram RDC network

Early civilization began as riverbank colonies (Figure 4). The colonies failed to provide everyone's fundamental needs as they grew [11]. Families and individuals left or founded new colonies [12]. They left family and friends. Communication was needed to maintain the relationship. In the absence of other means, physical communication was attempted (Table 2).

Table 2: Combination of Clustered Area in Thiruparankundram

Cluster -1	Cluster - 2	Cluster – 3	Cluster - 4	Cluster – 5
A_1	A_1	A_1	A_1	A_1
A_2	A_{10}	A_{14}	A_{10}	A_2
A_5	A_7	A_9	A_{11}	A_4
A_7	A_{14}	A_8	A_{13}	A_{22}
A_{11}	A_{21}	A_{26}	A_{14}	A_{15}
A_6	A_{19}	A_{17}	A_{15}	A_9
A_{19}	A_{18}	A_{25}	A_7	A_8
A_{22}	A_{28}	A_5	A_8	A_{12}
A_4	A_{20}	A_7	A_{26}	A_{22}
A_8	A_{24}	A_{15}	A_{19}	A_{15}
A_{16}	A_{17}	A_{12}	A_{20}	A_{21}
A_{28}	A_{28}	A_{28}	A_{28}	A_{28}

The first-ever physical message was transferred by a messenger. The messenger ran from Sparta to Athens to convey the message of Greek victory. This runner went on to become the inspiration for the marathon events in the Olympics. After this event, runners were extensively used to transfer the messages physically (Table 3).

Table 3: Customer points Delivery and Pick up details of Tirumangalam Regional Distribution Centre

S.NO	Customer Points (A)	Average Demand (g)		Max Tour Length (Km)	Retailers
		Delivery	Pick up		
1	A_1	21	28	2.45	R_1
2	A_2	77	97		
3	A_3	11	9		
4	A_4	72	75		
5	A_5	78	62		
6	A_6	9	16		
7	A_7	27	28	2.24	R_2
8	A_8	6	16		
9	A_9	13	16		
10	A_{10}	22	34		
11	A_{11}	33	23		
12	A_{12}	16	10	3.68	R_3
13	A_{13}	23	38		
14	A_{14}	37	42		
15	A_{15}	35	32		
16	A_{16}	43	46		
17	A_{17}	77	87	2.56 `	R_4
18	A_{18}	28	45		
19	A_{19}	39	43		
20	A_{20}	42	24		
21	A_{21}	76	34	3.67	R_5
22	A_{22}	39	37		
23	A_{23}	14	11		
24	A_{24}	19	19		
25	A_{25}	29	32		
26	A_{26}	13	16		

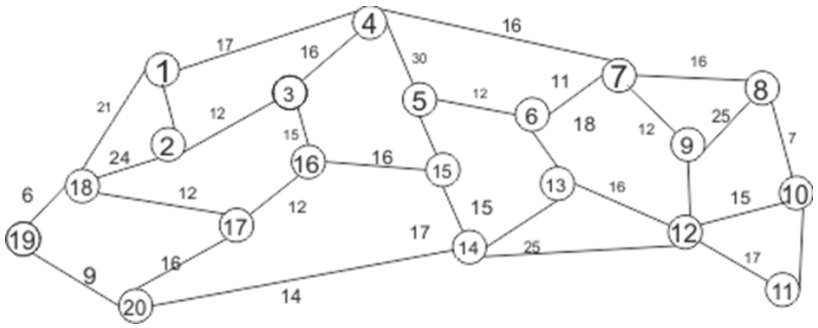

Figure 5: Tirumangalam RDC network

During the era of individual kings such as Mughal Emperors, Babar organized a horse courier system from Agra to Kabul (Figure 5). Akbar introduced camel service to deliver the post to desert areas [13]. Horse riders replaced the foot runners for the transfer of messages. In modern times, the governments of individual countries handle the operations of Transferring messages [14]. A separate organization carries out the Postal Service, which started in the 13th century. The postal department has a wide network of post offices, collection centres and personnel for distribution [15]. As the spread and volume of postal operations increase, delivery delays and misplacement and/or loss of messages become common phenomena. This forced the users to look for an alternative to these services (Table 4).

Table 4: Combination of Clustered Area in Tirumangalam

Cluster -1	Cluster - 2	Cluster - 3	Cluster - 4	Cluster – 5
A_1	A_1	A_1	A_1	A_1
A_2	A_2	A_2	A_2	A_2
A_3	A_3	A_3	A_3	A_3
A_4	A_4	A_4	A_4	A_4
A_5	A_5	A_5	A_5	A_5
A_6	A_6	A_6	A_6	A_6
A_7	A_7	A_{11}	A_{17}	A_9
A_8	A_3	A_3	A_3	A_{13}
A_9	A_4	A_{11}	A_4	A_8
A_{10}	A_{15}	A_{14}	A_5	A_{12}
A_{16}	A_{23}	A_{19}	A_6	A_{11}
A_{27}	A_{27}	A_{27}	A_{27}	A_{27}

The transporters were the first to realize this emerging need. They initiated the delivery of the messages through their transport network [16]. Then came the individuals acting as links between the transporters and those needing to transfer their messages. They formed the couriers, meaning messengers who take messages and deliver them to their destinations. The real need for change in message transfer was felt after the Industrial Revolution [17]. The Industrial Revolution forced manufacturers and suppliers to reach the neighbouring markets for survival [18]. This has given rise to a need for faster and more reliable transfer of written messages and goods between manufacturing locations and markets and between markets (Table 5).

Table 5: Customer points Delivery and Pick up details of Checkanurani Regional Distribution Centre

S.No.	Customer Points (A)	Average Demand (g)		Max Tour Length (Km)	Retailers
		Delivery	Pick up		
1	A_1	22	29	2.67	R_1
2	A_2	28	99		
3	A_3	12	10		
4	A_4	73	71		
5	A_5	81	63		
6	A_6	11	13		

7	A_7	18	30	2.43	R_2
8	A_8	10	15		
9	A_9	14	16		
10	A_{10}	27	28		
11	A_{11}	37	49		
12	A_{12}	18	12	3.98	R_3
13	A_{13}	25	39		
14	A_{14}	38	43		
15	A_{15}	36	35		
16	A_{16}	45	48		
17	A_{17}	104	103	2.77	R_4
18	A_{18}	28	49		
19	A_{19}	42	45		
20	A_{20}	43	27		

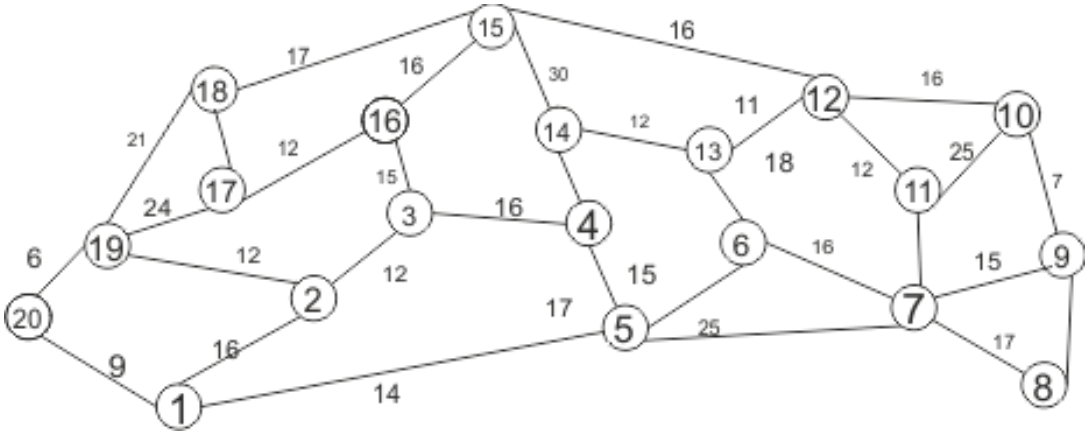

Figure 6: Checkanurani RDC network

As the marketing houses became organized and started catering to far-off markets, another phase of change in message transfer was forced on the industry (Figure 6). The markets became consumer-driven rather than product-driven [19]. This necessitated conveying specific messages from particular markets to the manufacturing units. In response, the faster delivery of the required goods to the target market became increasingly necessary [20]. The need for time-bound delivery of messages and goods arose in line with this requirement. Express Services originated due to this demand of time-bound deliveries (Table 6).

Table 6: Combination of Clustered Area in Checkanurani

Cluster -1	**Cluster - 2**	**Cluster - 3**	**Cluster - 4**	**Cluster – 5**
A_1	A_1	A_1	A_1	A_1
A_2	A_2	A_2	A_2	A_2
A_3	A_3	A_3	A_3	A_3
A_4	A_4	A_4	A_4	A_4
A_5	A_5	A_5	A_5	A_5
A_6	A_6	A_6	A_6	A_6
A_7	A_7	A_7	A_7	A_7
A_{13}	A_{19}	A_3	A_3	A_3
A_{11}	A_{17}	A_{19}	A_4	A_4
A_{19}	A_{12}	A_{13}	A_5	A_{12}
A_{19}	A_{13}	A_9	A_6	A_{13}
A_{20}	A_{20}	A_{20}	A_{20}	A_{20}

The courier industry has grown due to the need for efficient and reliable delivery of parcels and documents, faster communication, and urgent dispatch of materials to various centres within and outside the country. The courier industry has become an alternative to the postal system.

The sphere of courier services is expanding day by day [21]. They offer a variety of value-added services, namely, time-bound delivery of consignments, door-to-door (by Air & Surface), door-to-airport and airport-to-door, pick-up, proof of delivery, collection of cheque, payment after delivery, bill the consignee, monthly payments, tracking service, web-enabled services and the like [22].

5. Suggestions Based on the Findings of The Study

Based on the study's findings, the following are suggestions for improving the in-process industry. From the pick-up points, the retailers collect the materials from the customer and transfer them to the regional distribution centre, which is further transferred to the national distribution centre [23]. The delivery also happens simultaneously and vice versa. So, pick-up and delivery are combined into a single process. The nearest neighbourhood algorithm provides a detailed study about the lying of the path with less transportation length and reduces the amount spent on transportation. But it doesn't have any space to consider the frequency of customers [[24]. An empty trip isn't worth a penny. Thus, some paths don't have more customers for many reasons, so assigning a separate pick-up point is useless. In other cases, some pick-up points will be highly active during weekdays and don't have that many customers at the weekend; at that time, the travel will be useless; to avoid such things, we come up with a new algorithm which is applied to the network formed by the nearest neighbourhood algorithm and the divisions were altered, and the paths were reconstructed based on the new algorithm [25].

The new algorithm proposed is called a reinforcement learning algorithm, which deals with past data and analyzed data to construct a completely effective path according to customer availability in the region and considers the track history of the region [26]. In the reinforcement learning algorithm, the data are analyzed with the motto of reducing the cost of transportation following the profit generated in the process. In the nearest neighbourhood algorithm, only the factor of reducing the distance between the pick-up points and retailers and regional distribution centre is taken into account; they act the same throughout the period without considering the availability of customers, but in the reinforcement learning algorithm, both the availability of customers and reduction of travel path is considered and provides a more efficient and sustainable model equally balancing the reduction of cost with high customer satisfaction [27]. So, the reinforcement learning algorithm provides a stable environment for establishing and processing the system with the highest efficiency rate.

This paves the way for a new beginning. The proposed method is also suitable for all the famous e-commerce websites like Flipkart, Amazon, eBay, etc., which acts as a medium between the customer and the seller. This method makes the selling and buying of products easier [28]. It optimises the seller, buyer and mediator, finding a significant change in the expenditure, which will pave the path for developing more entrepreneurs. It will create a new era where anyone can buy and sell products under a fully optimized system.

6. Summary of Results

The results summarized in the above tabulations were derived from various practical activities using the nearest neighbourhood algorithm, which was converted into theoretical data and applied in the proposed model to attain such large data of positive results (Table 7).

Table 7: Summary of Results

No.	Regional Distribution Centre	Existing Transportation Cost / Month (Rs)	Cost Savings (Using Nearest Neighbourhood)		Cost Savings (Using Reinforcement Learning Algorithm)	
			Per Day (Rs)	Per Month (Rs)	Per Day (Rs)	Per Month (Rs)
1	Thiruparankundram	23450	1235	37050	2345	70350
2	Tirumangalam	29000	1598	47940	2998	89940
3	Checkanurani	24888	1344	40320	3222	96660
4	Usilampatti	33456	2225	66750	2344	70320
5	Peraiyur	35000	2120	63600	2456	73680
6	Tirupuvanam	22287	1422	42660	3422	102660
7	Manamadurai	24567	1767	53010	2413	72390
8	Paramakkudi	34876	2114	63420	3214	96420
9	Sivagangai	30987	1499	44970	2342	70260
10	Kalaiyarkovil	23456	1344	40320	2313	69390
11	Melur	22000	1599	47970	2876	86280

12	Tiruppatur	25674	1344	40320	2431	72930
13	Ponnamaravati	24654	1677	50310	3981	119430
14	Natham	35678	1999	59970	2435	73050
15	Vaadipatti	28765	1877	56310	2354	70620
16	Alanganallur	24569	1433	42990	2678	80340
17	Chinalapatti	23451	1233	36990	2899	86970
18	Nilakkotai	25643	1299	38970	2762	82860
19	Batalagundu	28997	1488	44640	2453	73590
20	Periyakulam	33567	2560	76800	3425	102750
21	Jakkampatty	34321	2470	74100	3987	119610

These readings have been derived considering all the possible facts and expenditures that are essential for the setup of the new model, and one more thing, the execution of this model doesn't need a new structure to be built; this can be applied in the pre-existing model with a lesser amount of changes. So, the conversion cost will also be reduced, and it will be one of the best evolutions experienced by the industry (Figure 7).

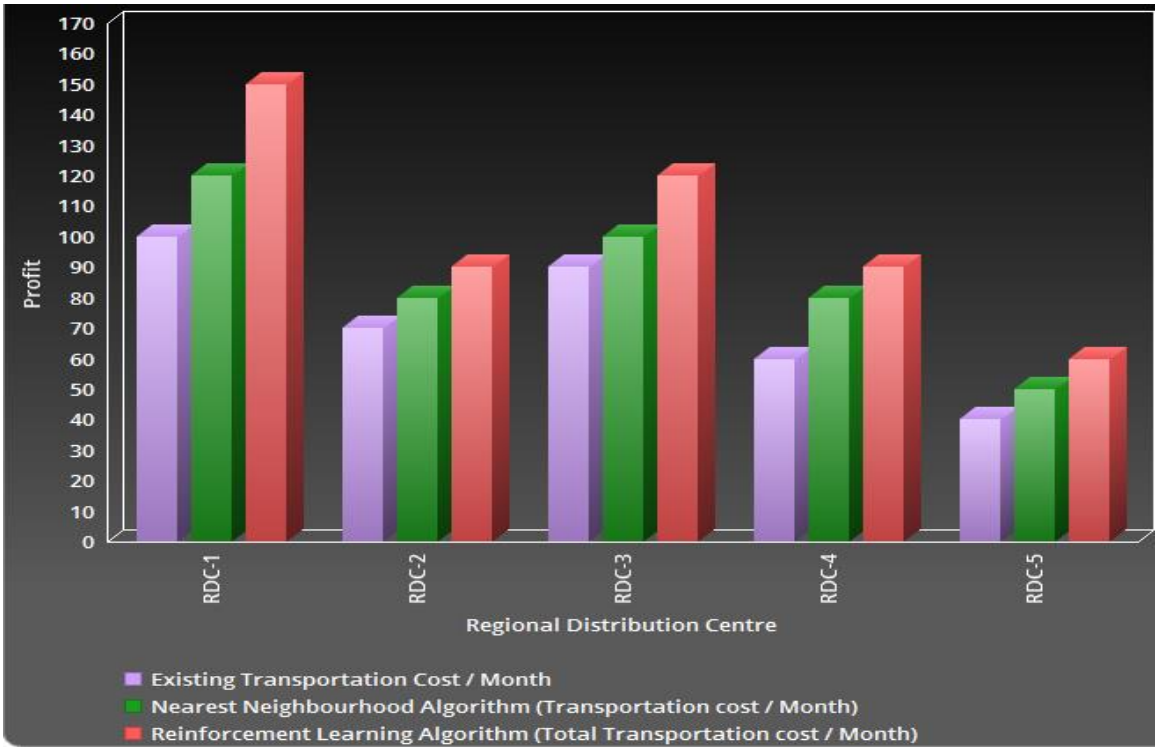

Figure 7: Graphic Illustrations of Overall Cost Savings

7. Conclusion

The results from the theoretical execution and calculation prove that the proposed reinforcement learning algorithm yields about 10% more profit than the profit yielded by the pre-existing models. The proposed method dramatically changed the system, yielding greater profits. History proves that we have undergone much evolution to develop the system, so here we have proposed a new model, which is a wise choice for the next evolution. The current research has shed some light on the processing industry and suggested more evolutions. In order to increase its efficiency and increase customer satisfaction. Future research could be on various themes, such as a study on the revolution of the process industry, an analysis of cost reduction factors in the process industry, and a comparative study on the optimal working of the process industry. This model is much more suitable for Flipkart, Amazon, etc. The current research has shed some light on the processing industry and suggested more evolutions. In order to increase its efficiency and increase customer satisfaction. Future research could be on various themes, like A study on the revolution of the process industry. An analysis of cost reduction factors in process industry, A comparative study on optimal working of process industry.

Acknowledgement: We would like to thank all those people who have been instrumental in making us do this research work without any hiccups in between.

Data Availability Statement: The collected data was analyzed using valid statistical techniques. Descriptive statistics, such as means, standard deviations, and frequencies, were computed to summarize the characteristics of the variables.

Funding Statement: We confirm no funding was received for this research work.

Conflicts of Interest Statement: The work is a collaborative effort of all authors, and every aspect of the work is mutually agreed upon.

Ethics and Consent Statement: All authors have unanimous consent to make this work available to everyone interested in exploring the same.

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