Utilizing Troubleshooting in Supply Chain Management in Iran Transfo Company and Making Priority Scheme by using Group Decision-Making Techniques

Mohammad Reza lotfi[1], Kamran Jamali Firozabadi[2], Mohammad Bagher Abdolahi[3]

[1,2,3] Industrial Engineering Department, Islamic Azad University of firouzkoh, Tehran, Iran

([1]m.reza_lotfi@yahoo.com, [2]mitkamm@yahoo.com, [3]m_abdolahi_1387@yahoo.com)

Abstract- In this thesis, Iran Transfo Company's supply chain as a supply chain project, fault finding, identifying and determining their condition and priority classification are evaluated using a group decision. Primarily due to the use of inaccurate and vague language such as words, the application of the SCOR model and group decision making method (method Breda) have benefited. More useful and sufficient knowledge about the situation after the plant and its supply chain and supply chain related activities such as purchasing, production, sales, supply chain the company have identified the problem using techniques of group decision Breda prioritize've done., RFP related, is presented and the performance indicators for all projects have been prioritized in the SCOR model. Iran Transfo Company can use this thesis as well as projects in the future some other companies reduce their dependence on the production of parts and raw materials, the self. This can be costly and wasteful of costs, including costs of transportation, maintenance, time and lost customers and ... Decreases and increases the quality of products, increase customer satisfaction.

Keywords- SCM, SCOR, BERDA.

I.   INTRODUCTION

Comprehensive and brief explanations that can adduct justice from Chain mark   securing   and   managements phrased from : Chain mark   securing on all connected activities with flow and change products from row material phase (extraction) until transfer to ultimate user and also contain the information flow connected with them on general way. Chain mark   securing the ripple that contain all activities connect with product flow and reduction material from preparation primary material phase to transfer ultimate product phase to user .Product flow also presents two other flow that one of them is information flowing and other is financial sources and credits . Chain mark   securing management containing make monolith continuum securing and also information flowing   connected   with them   from   improvement   on

continuum connecting way on vertical achievement on the table to learning and continued company advantage .So , Chain mark securing management is phrased from making monolith process and also information flowing connecting with them from improvement and   make   harmonic activities way on production and securing product on Chain mark securing for examination of one confined unique formation at this subjects must be with viewing both of securing   net and distribution channels . Present laudation for Chain mark   securing   give   on bosom information   systems   management   subjects , searching source and provisions production time funicular , orders processing ,directorship cash , having garner and service to customer .
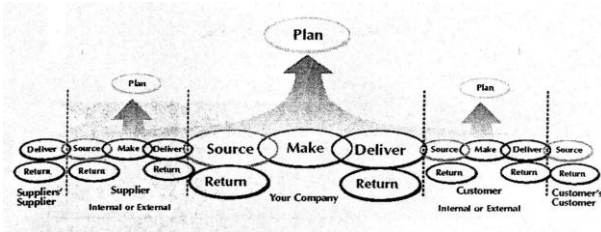
II.   INTRODUCTION SCOR MODEL

Chain mark   securing Refer model activities(1) (SCOR) is tool for presentation and analysis chain mark   securing be memorized model made by chain mark   securing society (supply chain   council) that is one free organization on heading one industrial standard for chain mark   securing management . SCOR counted on heading first general frame for management evaluation and improvement and chain mark   securing revenue .This model bosom lie optimized models don't presentation on that anywise explanatory from mathematical formula from one chain mark   securing with exchange used unit mysterious words and standard process on that . On the other hand SCOR model had standard explanation and numerous vast measure scales for examination chain mark securing revenue .

- Chain mark   securing process on SCOR model

  1. Level   processes   presented   SCOR   processes programming P

process , securing S process , product M process , transfer D process, back R process

2. Level processes presented SCOR kind process
- Programming p_n process : p_n

Process that forecasting and calculation expose to expectances for making instant expectation request needs . Have duty balance between request and supply
- Executive E_x process : E_x Process that is being on effect of real request or planning request .

and on duration that material and pieces received , reduction and shift .
- Make powering E_n process : E_n Process that is directorship and guardianship changed information and existent connections doing effective way like

Programming and executive with cores on that.

Level 2 process					
	P	*S*	*M*	*D*	*R*
Pn	P1	P2	P3	P4	P5
Ex	---	S1 S2 S3	M1 M2 M3	D1 D2 D3 D4	SR1 DR1 SR2 DR2 SR3 DR3
En	EP	ES	EM	ED	ER

Now with attention on SCOR model and company situation actual analysis and resolution events .

III. RESEARCH METHODOLOGY

Research method on this article like this that several parts after Completely knowledge analysis and resolution and searched event by using from connected part on SCOR model and after event group funicular , introducing the projects for improvements .for example about examination determination suitable numbers of security doers csn suggested appearance ES.1 part on SCOR model that is connecting with appointment suitable numbers of security doers at this part must determined appearance needs , create , establishment and accomplishment of decide scale and criterion supporter that is on trade and work strategy and examined and analysis and resolution destinations and aims that is

appointing suitable securing doers and strategic connections with securing doers at our work now with attention to upper matters and also attention to the explanations that presented about with SCOR model .Proposed win existence events on chain mark securing field at Iran Transfo Co .

IV. GROUP FUNICULAR EXISTENCE PROBLEMS AND EVENTS AT CO. AND INTRODUCING IMPROVEMENTS PROJECTS

At this part pay to collecting events connected with chain mark securing at Iran Transfo Co that some of this event information gathering with observation and also some of them with interview from managers and workers of every part . At least faction this event and determining the project for every one for improvement .
- Cash upper expenses at primary material and pieces garner
- Shortage upper expenses at spare pieces garner
- Haven't renewed ordering point at primary material and pieces garner
- Haven't trustful cash system at primary material and pieces garner
- High expenses of cash at products granary
- High shortage expenses at products granary
- Haven't trustful cash system in products granary
- Deficiency use from sale forecasting software
- Deficiency have collected system for programming of produce programming part
- Haven't heavy transportation hoods for sending products to customers
- Increase holding expenses of cram products at granaries Until transfer to customers because aren't transportation hoods
- Very high time of provision pieces and foreign row material
- High expenses of prepared greed exterior row material
- Deficiency exact evaluation securing doer revenue
- Expenses which exercised to company on vestigial making material from the securing doer that missing competence
- Company for choosing securing doer attention to qualitative problems more than financial problems
- Deficiency attention to gnomons connected with choosing securing doer
- Don't use from securing choose factors with several coefficients for each group of row material like cost , time , transfer place ,material quality , …
- Deficiency existence one regular and connected part with complains and opinion of customers
- Weakness and defect at keeping customers and achievement with them and proof it on action
- Deficiency use from connection with customer management software

- Without attention to first row securing doer and arrangement to row them with other securing doers
- Haven't existence the regular and specifies part for establishment connect with securing doer
- Deficiency use from connections with securing doer management software
- Nonexistence using from suitable net establishment connection with securing doer after appointment existence events and problems in Co . Action to group funicular events and determining the mysterious project for improvement actual situation .That suggested on under numbers of proposal projects .
- for each group of row material like cost , time , transfer place ,material quality , …
- Deficiency existence one regular and connected part with complains and opinion of customers
- Weakness and defect at keeping customers and achievement with them and proof it on action
- Deficiency use from connection with customer management software
- Without attention to first row securing doer and arrangement to row them with other securing doers
- Haven't existence the regular and specifies part for establishment connect with securing doer
- Deficiency use from connections with securing doer management software
- Nonexistence using from suitable net establishment connection with securing doer after appointment existence events and problems in Co . Action to group funicular events and determining the mysterious project for improvement actual situation .That suggested on under numbers of proposal projects .
- Design and create affiliated companies
- Product sale forecasting system design for 5 future years
- Confidence cash controlling system design for ultimate products
- Row material and pieces cash granary controlling system design
- Assigning numbers of securing doers system design
- Assigning for choosing securing doers system design
- Assessment revenue knowing and assigning suitable numbers of securing doers
- Possibility measuring design and create local and foreign Logistic
- Connected with customers management system design (CRM)
- Connected with securing doers management system design(SRM)

For example to set examination design and create affiliated companies project with attention to that more than %90 needing row material of Iran Transfo Co secured from other local and foreign companies with performance this project can reduce more of connected to ordering , buying , transportation and … and so with self sufficiency company and become

equipped it can increased variety of products on future with attention to customers need RFP specifications at this project that only suggested to 2 cases of design problem and goals and project main exist like under :

1. Problem design:

With attention to strategic programs of Co based on develop and variety of product and increased efficiency and revenue and on propertied essential in country (Satkab and Meli bank) and for assured securing row material and prepared and producing of other various products and achievement bazaar in inside of country try to sale and authority prehensive foreigner bazaars until from this way could achievement today technology and other products can active also on lightning industry and other industry of strength. So needing to examination and the expert by expert this authoritative and assessment financial from narrated properties and immovable properties.

2. Goals and exists of main project:

Expecting execution this project has attendant nether result
- Increased producing and capacity
- Upper numerous variety of products
- Concussing on bazaars' of lateral equipment production
- Become less nonexistence of finality deficiency on securing material from external sources
- Become reductional to the strategic securing doer on middle east
- Customer consent and create loyalty on it
- Reduce shortage expenses of row material and pieces
- Increased revenue and efficiency

Other said projects also can after determined to their RFP and on authority pirates that wishing execution of the two projects

V. EVALUATION AND PRIORITY FUNICULAR OF PROJECTS

Improvement projects rankings by the four factors of cost, flexibility, reactivity and reliability. The following table shows the impact each of these projects is on the factors affecting supply. Each of the above parameters were based on interviews with executives and the company's overall strategies and evidence is available, we have prioritized the cost factor, reliability factor, reactivity and flexibility to account for factors have. Breda to end up using any of the points allocated to projects based on the priorities we have.

$$X_1 \ X_2 \ X_3 \ X_4$$

$$D_1 = \begin{array}{c} A_1 \\ A_2 \\ A_3 \\ A_4 \\ A_5 \\ A_6 \\ A_7 \\ A_8 \\ A_9 \end{array}\begin{bmatrix} 5 & 55 & 5 \\ 5 & 53 & 5 \\ 5 & 41 & 5 \\ 4 & 43 & 4 \\ 4 & 54 & 1 \\ 4 & 51 & 2 \\ 2 & 22 & 3 \\ 2 & 22 & 2 \\ 2 & 11 & 4 \end{bmatrix}$$

$$\begin{array}{cccc} X_1 & X_2 & X_3 & X_4 \end{array}$$

$$D_2 = \begin{array}{c} A_1 \\ A_2 \\ A_3 \\ A_4 \\ A_5 \\ A_6 \\ A_7 \end{array}\begin{bmatrix} 4 & 55 & 2 \\ 5 & 45 & 3 \\ 4 & 43 & 3 \\ 2 & 12 & 5 \\ 1 & 12 & 4 \\ 3 & 52 & 1 \\ 2 & 14 & 3 \end{bmatrix}$$

$$\begin{array}{cccc} X_1 & X_2 & X_3 & X_4 \end{array}$$

$$D_3 = \begin{array}{c} Á_1 \\ A_2 \\ A_3 \\ A_4 \\ A_5 \\ A_6 \\ A_7 \\ A_8 \\ A_9 \end{array}\begin{bmatrix} 4 & 35 & 1 \\ 4 & 33 & 2 \\ 4 & 43 & 3 \\ 5 & 14 & 1 \\ 2 & 33 & 2 \\ 5 & 22 & 4 \\ 3 & 52 & 1 \\ 3 & 51 & 1 \\ 3 & 34 & 2 \end{bmatrix}$$

$$\begin{array}{cccc} X_1 & X_2 & X_3 & X_4 \end{array}$$

$$D_4 = \begin{array}{c} A_1 \\ A_2 \\ A_3 \\ A_4 \\ A_5 \\ A_6 \\ A_7 \\ A_8 \\ A_9 \end{array}\begin{bmatrix} 2 & 41 & 3 \\ 3 & 21 & 4 \\ 5 & 53 & 5 \\ 4 & 51 & 3 \\ 5 & 45 & 5 \\ 4 & 53 & 1 \\ 5 & 35 & 5 \\ 2 & 35 & 5 \\ 3 & 32 & 3 \end{bmatrix}$$

$$\begin{array}{cccc} X_1 & X_2 & X_3 & X_4 \end{array}$$

$$R_G = \begin{array}{c} A_1 \\ A_2 \\ A_3 \\ A_4 \\ A_5 \\ A_6 \\ A_7 \\ A_8 \\ A_9 \end{array}\begin{bmatrix} 4 & 8 & 9 & 2 \\ 7 & 5 & 5 & 9 \\ 9 & 7 & 4 & 8 \\ 6 & 2 & 3 & 7 \\ 3 & 6 & 8 & 5 \\ 8 & 9 & 1 & 1 \\ 5 & 1 & 7 & 3 \\ 2 & 3 & 6 & 6 \\ 1 & 4 & 2 & 4 \end{bmatrix}$$

$$Q_G = \begin{array}{c} A_1 \\ A_2 \\ A_3 \\ A_4 \\ A_5 \\ A_6 \\ A_7 \\ A_8 \\ A_9 \end{array}\begin{bmatrix} 0 & W_4 & 0 & W_1 & 0 & 0 & 0 & W_2 & W_3 \\ 0 & 0 & 0 & 0 & W_2+W_3 & 0 & W_1 & 0 & W_4 \\ 0 & 0 & 0 & W_3 & 0 & 0 & W_2 & W_4 & W_1 \\ 0 & W_2 & W_3 & 0 & 0 & W_1 & W_4 & 0 & 0 \\ 0 & 0 & W_1 & 0 & W_4 & W_2 & 0 & W_3 & 0 \\ W_3+W_4 & 0 & 0 & 0 & 0 & 0 & 0 & W_1 & W_2 \\ W_2 & 0 & W_4 & 0 & W_1 & 0 & W_3 & 0 & 0 \\ 0 & W_1 & W_2 & 0 & 0 & W_3+W_4 & 0 & 0 & 0 \\ W_1 & W_3 & 0 & W_2+W_4 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$W_1 = 0.2, \ w_2 = 0.3, \ w_3 = 0.4, \ w_4 = 0.1$$

$$Q_G = \begin{array}{c} A_1 \\ A_2 \\ A_3 \\ A_4 \\ A_5 \\ A_6 \\ A_7 \\ A_8 \\ A_9 \end{array}\begin{bmatrix} 0 & 0.1 & 0 & 0.2 & 0 & 0 & 0 & 0.3 & 0.4 \\ 0 & 0 & 0 & 0 & 0.7 & 0 & 0.2 & 0 & 0.1 \\ 0 & 0 & 0 & 0.4 & 0 & 0 & 0.3 & 0.1 & 0.2 \\ 0 & 0.3 & 0.4 & 0 & 0 & 0.2 & 0.1 & 0 & 0 \\ 0 & 0 & 0.2 & 0 & 0.1 & 0.3 & 0 & 0.4 & 0 \\ 0.5 & 0 & 0 & 0 & 0 & 0 & 0 & 0.2 & 0.3 \\ 0.3 & 0 & 0.1 & 0 & 0.2 & 0 & 0.4 & 0 & 0 \\ 0 & 0.2 & 0.3 & 0 & 0 & 0.5 & 0 & 0 & 0 \\ 0.2 & 0.4 & 0 & 0.4 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

Max :

$0.1\, h_{1,2} + 0.2\, h_{1,4} + 0.3\, h_{1,8} + 0.4\, h_{1,9} + 0.7\, h_{2,5} +$
$0.2\, h_{2,7} + 0.1\, h_{2,9} + 0.4\, h_{3,4} + 0.3\, h_{3,7} + 0.1\, h_{3,8} +$
$0.2\, h_{3,9} + 0.3\, h_{4,2} + 0.4\, h_{4,3} + 0.2\, h_{4,6} + 0.1\, h_{4,7} +$
$0.2\, h_{5,3} + 0.1\, h_{5,7} + 0.3\, h_{5,6} + 0.4\, h_{5,8} + 0.5\, h_{6,1} +$
$0.2\, h_{6,8} + 0.3\, h_{6,9} + 0.3\, h_{7,1} + 0.1\, h_{7,3} + 0.2\, h_{7,5} +$
$0.4\, h_{7,7} + 0.2\, h_{8,2} + 0.3\, h_{8,3} + 0.5\, h_{8,6} + 0.2\, h_{9,1} +$
$0.4\, h_{9,2} + 0.4\, h_{9,4}$

$$\sum_{i=1}^{9} h_{i,1} = 1$$

$$\sum_{j=1}^{9} h_{j,2} = 1 \qquad \sum_{k=1}^{9} h_{k,3} = 1$$

$$\sum_{h=1}^{9} h_{h,4} = 1 \qquad \sum_{f=1}^{9} h_{f,5} = 1$$

$$\sum_{l=1}^{9} h_{l,6} = 1 \qquad \sum_{m=1}^{9} h_{m,7} = 1$$

$$\sum_{n=1}^{9} h_{n,8} = 1 \qquad \sum_{g=1}^{9} h_{g,9} = 1$$

$$\sum_{i=1}^{9} h_{1,i} = 1 \qquad \sum_{j=1}^{9} h_{2,j} = 1$$

$$\sum_{k=1}^{9} h_{3,k} = 1 \qquad \sum_{h=1}^{9} h_{4,h} = 1$$

$$\sum_{f=1}^{9} h_{5,f} = 1 \qquad \sum_{l=1}^{9} h_{6,l} = 1$$

$$\sum_{m=1}^{9} h_{7,m} = 1 \qquad \sum_{n=1}^{9} h_{8,n} = 1$$

$$\sum_{g=1}^{9} h_{9,g} = 1$$

$$A_6 > A_9 > A_4 > A_3 > A_2 > A_8 > A_7 > A_5 > A_1$$

- Create and design affiliated companies
- Design system of producing programming software
- Design system of sale forecasting for 5 future years
- Design system of cash controlling of row material and pieces granary
- Design system of trustful cash controlling for ultimate products
- Design system of appointment numbers – choosing revenue assessment and knowing securing doers
- Design system of connected with customer management (CRM)

VI.CONCLUSION

At this article with introducing some projects and also some suitable solutions for comparison with existence problems and hardships at chain mark securing management field of Iran Transfo Co harvested improvement on present situation to limits projects like:
Possibility measuring of build and create affiliated companies , design system of sale forecasting for 5 future years , design system of trustful cash controlling for products , design system of cash controlling for row material and pieces granary , … that with execution this projects can opportunity to the goals like customers satisfaction , increased producing and capacity , reduce transferring time , reduce producing time , reduce producing expenses and reduce holding expenses , ... The assessment time for execution all of said projects is about 3 years . Iran Transfo Co. can by using from this end letter and also with execution said projects on future almost reduced it relational from other companies and on producing row material and pieces field this action could decrease many of exorbitant expenses like transportation expenses holding time and missed customers and also increased quality of the producing products , customers satisfaction .

REFERENCES

[1] www.scm.com , supply chain reference model (SCOR) 4.0, 2001.
[2] Mike Tayles and Colin Drury , moving from make/buy to sourcing : The outsource decision process , 2001
[3] Ram,Ganeshan Terry P Harrison an introduction to supply chain management university park Pa.16/802.osa.2004,p.3
[4] Dr Javanmard.Habibolah, industry engineering Strategic
[5] Magazine,Tarbiate Modares university,2005
[6] Javanroh.Saeed,first national lecture of Lejostic and securing doer,1383
[7] Feizabadi. Javad,Summery of securing doer,Tadbir magazine 2007.