

УДК 519.8

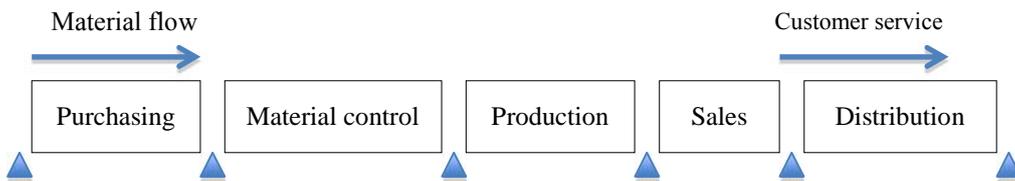
А.А. МОРОЗОВ

**РЕАЛИЗАЦИЯ МОДЕЛИ
ИНТЕГРАЦИИ ЦЕПИ ПОСТАВОК
В АГРОМАШИНОСТРОЕНИИ**

35 %
17 %

[1].

(Luhtala, 1994; Jahnukainen, 1995),
 (La Londe, Pohen, 1996),
 (Hines, Rich, 1997; Jones,
 1997)
 : (De Toni, Tonchia, 1996) [14].
 [12].
 (.2).
),
 ()



. 2.

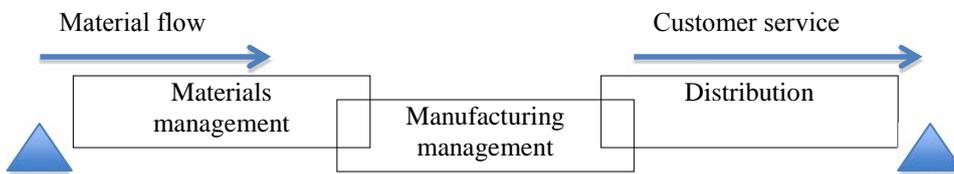
(Customer service) –
 (.3)
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.3.

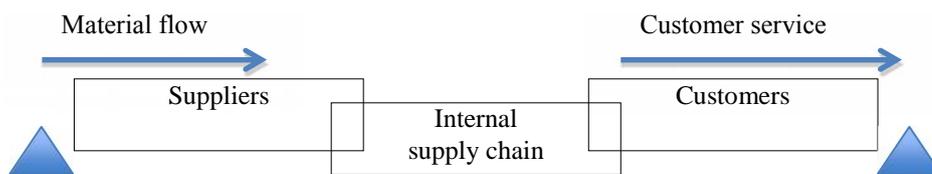
MRP II. MRP

(.4).



.4.

... (.5)



.5.

[11].

I , J

$h_i(t) -$ i : $a_i(t) -$ $t (t \in T), -$;

DC i $p_i(t)$ t ; $s_i(t)$ t ; $d_j(t) -$

j t ; $p_i^{\max} -$ t ; $d_j(t) -$

$i; s_i^{\max}, s_i^{\min} -$ $i; z_j^{\max}, z_j^{\min} -$

(. .) (. .)

$j; Q_{i,j}(t) -$ i t .

$N(v) -$ v ,

$V(i), (i \in I);$

$c_v -$ $v ()$; $c_{i,j}^c -$

i $j; t_{j,k}^v -$ k $j -$

$v (, , k) j ;$

$t - T_v(t); C_v -$

$v.$

$$\begin{aligned}
& \sum_{t \in T} \sum_{i \in I} \sum_{v \in V} \sum_{n \in N} \sum_{j, k \in K} c_v t_{j,k}^v x_{i,j,k}^{v,n}(t) + \sum_{t \in T} \sum_{i \in I} \sum_{j \in J} c_{i,j}^c Q_{i,j}(t) + \\
& + \sum_{t \in T} \sum_{i \in I} a_i(t) p_i(t) + \sum_{t \in T} \sum_{i \in I} h_i(t) (p_i(t) / 2 + s_i(t)) + \sum_{t \in T} \sum_{j \in J} \eta_j(t) z_j(t) \rightarrow \min. \quad (1)
\end{aligned}$$

$$\begin{aligned}
& x_{i,j,k}^{v,n}(t) = 1, \quad v \in V(i), \quad i \in I, \quad j \in J, \quad k \in K, \quad t \in T, \\
& \text{DC } k, \quad \text{DC } j
\end{aligned}$$

$$\begin{aligned}
& 1) \quad s_i(t) = s_i(t-1) + p_i(t) - \sum_{j \in J} \sum_{v \in V(i)} \sum_{n \in N(v)} q_{i,j}^{v,n}(t) - \sum_{j \in J} Q_{i,j}(t) \quad \forall i \in I, t \in T, \quad (2)
\end{aligned}$$

$$\begin{aligned}
& q_{i,j,k}^{v,n}(t) - \sum_{k \in K} q_{i,j,k}^{v,n}(t) = 0, \quad v \in V(i), \quad i \in I, \quad j \in J, \quad t \in T, \\
& 2) \quad \text{DC } j, \quad \text{DC } k
\end{aligned}$$

$$\begin{aligned}
& z_j(t) = z_j(t-1) - D_j(t) + \sum_{i \in I} \sum_{v \in V(i)} \sum_{n \in N(v)} q_{i,j}^{v,n}(t) + \sum_{i \in I} Q_{i,j}(t) \quad \forall j \in J, t \in T; \quad (3)
\end{aligned}$$

$$\begin{aligned}
& 3) \quad s_i^{\min} \leq s_i(t) \leq s_i^{\max}, \quad \forall i \in I, t \in T, \quad (4)
\end{aligned}$$

$$\begin{aligned}
& z_j^{\min} \leq z_j(t) \leq z_j^{\max}, \quad \forall j \in J, t \in T; \quad (5)
\end{aligned}$$

$$\begin{aligned}
& 4) \quad 0 \leq p_i(t) \leq p_i^{\max}, \quad \forall i \in I, t \in T; \quad (6)
\end{aligned}$$

$$\begin{aligned}
& 5) \quad \text{DC } k, \quad \text{DC } j, \quad \text{DC } k
\end{aligned}$$

$$\begin{aligned}
& \sum_{\substack{j \in \{i\} \cup J \\ j \neq k}} x_{i,j,k}^{v,n}(t) = \sum_{\substack{j \in \{i\} \cup J \\ j \neq k}} x_{i,k,j}^{v,n}(t), \quad \forall i \in I, v \in V(i), n \in N(v), k \in \{i\} \cup J, t \in T; \quad (7)
\end{aligned}$$

$$\begin{aligned}
& 6) \quad \sum_{j \in J} x_{i,i,j}^{v,n}(t) \leq 1 \quad \forall i \in I, v \in V(i), n \in N(v), t \in T; \quad (8)
\end{aligned}$$

$$7) \quad g_{i,j,k}^{v,n}(t) \leq C_v x_{i,j,k}^{v,n}(t), \quad \forall i \in I, v \in V(i), n \in N(v), k \in \{i\} \cup J, t \in T; \quad (9)$$

$$8) \quad \sum_{\substack{j \in \{i\} \cup J \\ j \neq k}} g_{i,j,k}^{v,n}(t) - \sum_{\substack{l \in \{i\} \cup J \\ l \neq k}} g_{i,k,l}^{v,n}(t) = q_{i,k}^{v,n}(t), \quad \forall i \in I, v \in V(i), n \in N(v), k \in J, t \in T, \quad (10)$$

$$\sum_{j \in J} g_{i,j,i}^{v,n}(t) - \sum_{l \in J} g_{i,i,l}^{v,n}(t) = -\sum_{j \in J} q_{i,j}^{v,n}(t), \quad \forall i \in I, v \in V(i), n \in N(v), t \in T; \quad (11)$$

$$9) \quad \sum_{n \in N(v)} \sum_{j \in \{i\} \cup J} \sum_{k \in \{i\} \cup J} t_{j,k}^v x_{i,j,k}^{v,n}(t) \leq T_v(t), \quad \forall i \in I, v \in V(i), t \in T; \quad (12)$$

$$10) \quad q_{j,k}^{v,n}(t) \geq 0; g_{i,j,k}^{v,n}(t) \geq 0; \forall i \in I; j \neq k \in \{i\} \cup J; v \in V(i); n \in N(v); t \in T, \quad (13)$$

$$Q_{i,j}(t) \geq 0; \forall i \in I; j \in J; t \in T, \quad (14)$$

$$x_{j,k}^{v,n}(t) = \text{binary} \quad \forall i \in I; j \neq k \in \{i\} \cup J; v \in V(i); n \in N(v); t \in T. \quad (15)$$

(1) – (15)

O.O. Morozov

IMPLEMENTATION OF A MODEL FOR SUPPLY CHAIN INTEGRATION IN AGROENTERPRISE

Approaches to the development of strategy for supply chain integration are analyzed. The design of four successive stages of integration is described. Basic principles of the model for supply chain integration are considered. The model includes production costs, inventory costs of a company and customers, and transportation costs (plant owned fleet and chartered transporters).

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Об авторе: