

Stock management of the company Gala a.s.

Bachelor thesis

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Abstract

Lukešová, A. Stock management of the company Gala a.s. Bachelor thesis. Brno: Mendel University in Brno, 2015.

The objective of the bachelor thesis is to evaluate the stock management in the company Gala a.s and propose measures for its improvement. The thesis is divided into two parts, literature review and theoretical part. In the literature review are defined basic terms from the logistics, stocks and its management, property of company and purchasing together with the choice of supplier. In practical part is evaluated current state of stocks, there are described current ways of stock management together with problem areas and next are suggested individual recommendations for ways of stock management.

Keywords

Stock management, logistics, ABC method, purchasing.

Abstrakt

Lukešová, A. Řízení zásob vybraného podniku Gala a.s. Bakalářská práce. Brno: Mendelova Univerzita v Brně, 2015.

Cílem této bakalářské práce je zhodnotit řízení zásob ve společnosti Gala a.s. a navrhnout opatření pro jeho zlepšení. Práce je rozdělena na dvě části, a to na literární rešerši a praktickou část. V literární rešerši jsou vymezeny základní pojmy z oblasti logistiky, zásob a jejich řízení, majetek společnosti a nakupování společně s výběrem dodavatele. V praktické části je zhodnocen současný stav zásob a jsou popsány současné způsoby řízení zásob společně s problémovými oblastmi a dále navrženy jednotlivá doporučení pro způsoby řízení zásob.

Klíčová slova

Řízení zásob, logistika, ABC metoda, nakupování.

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1 Introduction and aim

1.1 Introduction

Stock management and its optimization is in current, very variable economy important task of business entities and therefore is essential to devote especially big attention to the stocks. For every company is very important to have sufficient amount of stock in warehouse, but simultaneously to don't have excessive stocks that bound financial resources that can be used more effectively. Thus, to the stock management of the company must managers dedicate decisive attention so that they could satisfy customer's requirements and simultaneously can manage stocks in the best possible way.

In enterprises with intricate production processes is warehouse of material matter of course and essential part of planning. The company that I picked up places emphasis on material stocks, on that is this thesis focused. Is not possible to endanger fluence of production by shortage of stocks in warehouse and by this endanger failure to comply of term of proper completion of contracts. Enterprise must be prepared to face excess of demand over the supply and by this sustain and strengthen its position in the market. In order to be successful enterprise is needed to have created such management system which will be able to harmonize production and non-production processes in the enterprise, so that they would be fluence and without unnecessary delays. Every subject has the same aim to expend minimum costs for stock management. Sometimes, can happen that companies are rather focused on satisfaction of customer's need, which is surely right, but also order as much stocks as possible and don't do any analysis and thus can arise excessive stock.

1.2 Aim of the thesis

The aim of the bachelor thesis is to evaluate the stock management in the company Gala a.s. and propose measures for its improvement. To meet the aim of thesis is essential to analyse current state of stocks and its problem areas.

2 Objectives and methodology

The objective of this bachelor thesis is to evaluate the stock management in the company Gala a.s. and propose measures for its improvement on the basis of analysis of current state of stocks together with defining main problem issues and then work out the recommendations leading to its improvement. The thesis uses data from the period 2010-2014 available from the information system of the company.

The structure of the thesis is divided into theoretical part and practical part including analysis of current state of stocks and its problem issues, recommendations, discussions and conclusion. Theoretical part uses information from actually available resources. In the outset are explained basic concepts from the area of logistics, company's property, stocks and its management needed for understanding of this topic. One part is dedicated to property in general then stock in general like definition, way of management, methods for management of stocks and in the end the purchasing process.

Practical part uses information from accounting system of Gala a.s. for the period of the year 2010-2014. In the introduction is introduced profile of the company Gala a.s. together with its production program and description of company's organizational structure. Next, there is described current state of stock management concerning mainly material stocks with description of purchasing process and way of choice of supplier. Next, is done general overview of levels of purchases and sales in given years to state if the company manages stocks effectively and if is able to adapt to various changes or if the company doesn't dedicate sufficient attention to stock management and has big deviations within this 2 indexes. Further, there are described individual processes for particular productions with definition of main problem issues that the company is connected with.

On the basis of these problem issues are suggested recommendations and ways of stock management that could improve current way of stock management. Next are discussed suggested proposal.

The last part, conclusion, recapitulates the overall results of the bachelor thesis.

3 Literature review

Theoretical part of bachelor thesis is concerning with concepts from the area of logistics, theory of stocks and its management, property in the company and also describes area of purchase and choice of supplier.

3.1 Logistics

Logistics is a discipline, which deal with overall optimization, coordination and synchronization of all the activities whose chains are necessary for flexible and economical achievement of practical final effect (Pernica, 1998).

In a narrower sense the logistics are the activities as production, supply and transport. Logistics represents a flow of material from the raw materials to already processed material in the form of product transported to final customer. Basically logistics is focused on delivery of proper merchandise in proper quantity to proper place in proper time and for proper price. Sometimes it is denoted as 5S of logistics (Oudová, 2013). Švarcová (1999) says, that logistics deals with both flows between companies and flows within organizations with the aim to rationalize that flows so that they would be the most effective and burden the firm by the minimum costs. Drahotský and Řezníček (2003) add that logistic also includes communicative, informational and controlling systems. Kozler and Matějka (1998) divides the logistics into logistics industrial (manufacturing) that are logistics processes in production – supplying of raw materials, production instruments, transport, transport of material and business logistics which is movement of goods from production to customer – sales, transport, wholesale and retail. Logistics activities are planning, management and realization.

Aims of logistics

Fundamental aim of logistics is optimal satisfying of customers need. Customer is the most important part of the whole chain from which come out information about requirements for provision of delivery of goods and other related services. Also at the customer ends logistics chain ensuring movement of material and commodity (Drahotský and Řezníček, 2003).

Outer logistic goals are focused on satisfying of customers' wishes who apply them on the market. That contributes to maintenance or also next enlargement of extent of realized services. To that group of logistics goals is possible to classify increasing of sales volumes (not production), shortening of delivering periods, improving of reliability and completeness of deliveries, improving of flexibility of logistic services (Drahotský and Řezníček, 2003).

Inner logistics goals are oriented on decreasing of costs respecting the fulfilling of outer goals. These are following costs like on stock, on transport, on manipulation and storage, on production, on management and so on (Drahotský and Řezníček, 2003).

3.2 Property of the company and financial resources of the company

Success of business subjects in the market is influenced by many factors. Between them belongs property-financial stability, which is ability of the company to create and permanently keep optimal proportion between property and financial resources. **Property of company (Assets)** represents things, rights and other property values which belong to the entrepreneur and serve for operating the business. **Liabilities of company (own capital and other resources)** represent financial resources essential for obtaining of needed assets. In other words assets represent different forms of property to which are bound financial resources and liabilities express how many of monetary resources provide owners and creditors for coverage of assets (Martinovičová, 2006). According to Konečný (2006), the overall size of company capital depends on size of company, level of mechanization, automation, robotization and speed of material turnover. Finally, he adds that company should have such amount of capital that necessarily needs.

Synek et al. (2006) say that company needs some financial sources to start own activity. The source can be either equity or liabilities. If concerning production, company transform this capital into production factors. Besides managing and executive workers needs a company some tangible and intangible assets and material from which will produce – it is called economic resources. Its concrete composition is called assets. Assets expresses what the company owns and financial resources express fact to whom does it belong. And on the other hand are all capital resources such as equity and liabilities.

Assets of company is summary of all things, money, receivables and other property values which belong to entrepreneur and serve for his business. Two basic groups of resources are created, such as fixed assets and currents assets (Synek et al., 2006). Assets of company in accordance with Martinovičová (2006), is divided according to liquidity, which means, how quickly the property is able to convert into monetary resources. It is concerning **fixed and current assets**.

Current assets (Short-term, direct working, operating, liquid) (Martinovičová, 2006) is consumed at one time and it is not used for the next activity. This is an asset which changes its own form and the time of its usage is maximally 1 year. We can see three groups of current asset:

- money – cash and money on bank account
- receivables – represent claim for payment, the most typical are receivables from customers for sold products and services
- stocks – this represents an asset which is stored in warehouse at least for some time – material, products and goods (Petr Klínský and Oto Munch, 2000)

Martinovičová (2006) defines the current assets as following:

- **Stocks** – stored material – raw material and material, auxiliaries, operating substances, finished parts
 - stocks of own production – work in progress, semi-finished products, finished products and animals
 - stored goods – for a purpose of next sale
- **Receivables** – long-term and short term
- **Short-term financial assets** – cash, valuables, money on bank account, short term securities

Švarcová (1999) says that current assets should circulate. It means that money saved into stock are the “deadened” money and is needed to transform them on finished products so that, they could be sold and could bring new money. This is called circulation of current assets. Money in the beginning of circle should be lower than in the end = profit of company. Speed of stock circulation is calculated by 2 indicators depicted in picture number 1:

$$\text{Amount of turnovers} = \frac{\text{Overall consumption}}{\text{Average stock}} \quad [\text{amount}]$$

$$\text{Turnovertime} = \frac{365 \text{ days}}{\text{Amount of turnovers}} \quad [\text{days}]$$

Figure 1 Amount of turnovers and turnover time
Source: Švarcová, 1999.

Entrepreneur has 2 possibilities how to increase amount of turnovers: increase the volume of production and decrease average stock with keeping the same consumption per year (Švarcová, 1999).

Fixed assets

Second group creates fixed assets which is used for longer time and is unchanged during the work. Fixed asset is gradually worn out (Petr Klínský and Oto Munch, 2000). Kočí and Šamšová add that property doesn't change its appearance during

its using but only is worn out. Wearing is expressed in money and is called depreciation. It is divided into three groups:

- fixed intangible assets
- fixed tangible assets
- fixed financial assets (Synek et al., 2006)

Martinovičová (2006) divides the fixed assets as following:

- Fixed intangible assets – valuation is higher than 60.000 CZK (patents, licences, copyrights, software, know-how)
- Fixed tangible assets – separate movables whose valuation is higher than 40.000 CZK individually with the time of usage longer than 1 year (lands, buildings, movable assets – machines, production facilities, vehicles)
- Fixed financial assets – investment securities and deposits in possession longer than one year with maturity longer than one year

In the chart number 1 is depicted balance sheet:

Chart 1 Balance sheet

Balance Sheet	
Total Asset	Total Liabilities
Receivable for subscribed capital	Own capital
Fixed assets	Registered capital
Intangible fixed assets	Capital funds
Tangible fixed assets	Funds form profit
Fixed financial assets	Profit or loss statement of previous years
Current assets	Profit or loss statement of current year
Stock	Other resources
Long-term receivables	Reserves
Short-term receivable	Long-term liabilities
Short-term financial assets	Short-term liabilities
Accruals	Bank loans and overdrafts
	Accruals

Source: Martinovičová (2006)

3.3 Definition of stocks

As was already stated, according to Martinovičová (2006) stocks represent fundamental raw materials essential for ensuring realization of production. It is possible to imagine, that stocks are raw materials, material, unfinished products, intermediate products, products and commodity. Purchase of stock is very costly

investment and is needed to pay attention to that. Managers of companies try to achieve if possible the least amount of stocks. Tomek and Tomek (1996) divide functions of stocks into 3 basic groups: stocks in sphere of production, stocks in sphere of trade and stocks in sphere of consumption which includes stock in the sphere of society consumption and stock in sphere of individual consumption.

3.3.1 Supplying

Supplying is the one of the basic activities in organization where the organization ensures required stock for production in required quantity, time, quality, type composition and for acceptable prices. Undoubtedly inventories can be considered as main consumer of operating capital of organization (Oudová, 2013). Novotný (1999) says that acquisition of material is called supplying and is divided into following activities: Planning of material stocks, legal security of supply, purchase activity, storing of material stocks and release of material from warehouse into production.

Stock management considerably influence rentability of company which can be increased by either gradual lowering of costs or increasing of sale. So it relates to rentability of company's production. Within the stock management there are applied two basic methods such as pull system and push system (Oudová, 2013). Such methods serve us for determination of optimal size of stock in logistics system (Kubíčková, 2006).

- Pull system – is a situation when the company waits with the production till stimulus of customer (order), (it is a pulling from customer)
- Push system – is a company strategy when is produced on the basis of supposed sale (company doesn't wait for the customer, company pulls stock on the market without waiting for customer) (Oudová, 2013)

Kubíčková (2006) says that such methods serve us for determination of optimal size of stock in logistics system. And she adds the third method of stock management and it is combined system of stock management. Such system is possible to use if there is necessary flexible reaction on the conditions of environment or on time factor. In supplying is very important to point out **delivery cycle**, which represents period between 2 deliveries (Oudová, 2013).

3.3.2 Types of stocks

According to Martinovičová (2006) is essential to appropriately divide the stocks in terms of their function in logistics chain. Therefore is minimally distinguished common stock, safety stock and technological stock where:

Common stock is stock by which is satisfied expected consumption in the period of one delivery cycle.

Safety stock is intentionally created part of overall stock which has the task to secure production consumption of material when random deviation of real consumption and expected consumption occurs and also when random deviations of

real deliveries from contractually secured supplies occurs. If there is a possibility in advance with certainty to state future consumption and to count with delivery of ordered material in agreed term, then there is no need to create safety stock.

Technological stock is such stock of material and semifinished product in which are taking place some natural processes as ripening of fruit, aging of cheese or wine and wood drying. Size of technological stock is given by multiplication of average day consumption and stated amount of days of technological storing of particular material.

Oudová (2013) adds that in logistics practice is possible to meet with the maximal stock, minimal stock and strategic stock:

Maximal stock the company has in the time, when the new delivery is taken, in the beginning of delivery cycle.

Minimal stock is contrary to maximal stock. In case that common stock was depleted, then the minimal stock is state of stock before realization of next delivery. Basically, minimal stock represents sum of safety stock, technical stock and strategical stock.

Strategical stock creates such organizations, in which such depletion could cause considerable damages in production process or operation. For instance, it can be stock of spare parts in power station and distribution network. Some companies can distinguish between order stock and underused stock.

Order stock is such size of stock in which is essential to ensure new delivery so that, the delivery is delivered no later than in moment when the real stock decreases on the level of minimal stock. So it is some kind of addition of stock which satisfies the need of material or other parts of stock till next new delivery of stock.

Underused stock can be the stock, which was acquired redundantly, such stock which the company cannot use. Underused stock has two components as stock unnecessary (company cannot use these stocks because of the production process, nevertheless they can be used in other organization so is very useful to sell them) and overnormative (such stocks which the company needs but its quantity exceeds the quantity which the company is able to absorb).

3.3.3 Valuation of stocks

Valuation of current assets is easier, thank to the fact that the time between its acquisition and consumption is not that big as it is within fixed assets. Prices of stocks are changing with deviation of their market price. Nevertheless, on the basis of rules is also possible to value them by acquisition prices or production costs. Also, when there is a decrease in market price, it is possible decrease valuation of stocks (Martinovičová, 2006). By regulations is given, that stocks are valued either by real acquisition prices, by own costs or reproduction acquisition prices. Theory and practice know many ways of stock valuation (Mařík et al., 2011). Synek et al., (2006) state that by the rules is given that stocks are valued by acquisition prices, own costs or reproduction prices; in particular cases is used fair value. From theory and practice is distinguished between many ways of valuation as:

- Valuation of average prices – prices are found out by arithmetic average from acquisition prices of all deliveries
- According to FIFO method – (First In – First Out) – it means that the delivery which came to the storage as a first, as well leaves the storage as a first. This way is advantageous when prices fall because reportable profit is lower.
- According to LIFO method – (Last In – Last Out) – it means that is a first is consumed last delivery. This way is mainly used when prices increase, because it mitigates impact of inflation on the profit of company, however according to our tax and accounting rules we must not use this method.

3.4 Stock management

Kubíčková (2006) states, that stock management represents effective treatment and managing with stock, utilization of all reserves which exist in this area and respecting all the factors which has influence on efficiency of stock management.

Kubíčková (2006) adds that when there are some stocks which are useless and there is no demand for them then it means useless expending of resources (not only tangible and financial but also human). And on the other hand when there are no stocks in the time when is needed to fulfil order from customer, then it leads to loss of sales and subsequently to loss of customers and also a good name of company.

The aim of stock management is to maintain stock on such level and in such quantity, in order to secure rhythmic and continuous production, also completeness of customer's deliveries while overall costs should be the lowest. The most important thing is to answer on the question when and how many to order or place to the production for addition of stock (Kubíčková, 2006).

According to Synek (2006) **operational stock management** should secure such maintenance of concrete kinds of stock in such amount and structure, that corresponds to need of internal consumers and satisfaction of these needs should be in time and with minimal costs. **Strategical stock management** –is represented by set of decisions about quantity of financial resources which the company can earmark for their coverage. Sometimes such global stock management is called financial stock management.

Optimization of stocks

Synek (2006) states that **when we use optimization approach during stock management**, the basic criterion is minimization of overall costs for acquisition and maintenance of stock, but there is needed to respect full coverage of supposed needs and with certain level of assurance during deliveries and drawing from stock. For basic optimization criterion is regarded costs criterion.

3.4.1 Cost items associated with stock management

Costs associated with creation and usage of stock - these are for example costs which were spent on order, also acquisition costs and costs for security of delivery. This is relatively difficult precisely determine these costs. There are exercised methods of statistical-estimated character. **Costs for maintenance, storage and keeping of already purchased inventories** - these are the costs which represent what amount of financial resources is bounded to stocks, costs for storage and administration of stock and costs of risk. **Costs of shortage** - Such costs that arise in moment, when stock is not sufficient for satisfaction of customer's need. Such costs can arise either in production due to unused capacity or prolonging of continuous production during selling when the producer is not able to perform obligation to customer, loss of customer or weakening on competition position (Miloslav Synek et al., 2011).

In the figure 2 are depicted costs relationships of economic order quantity model

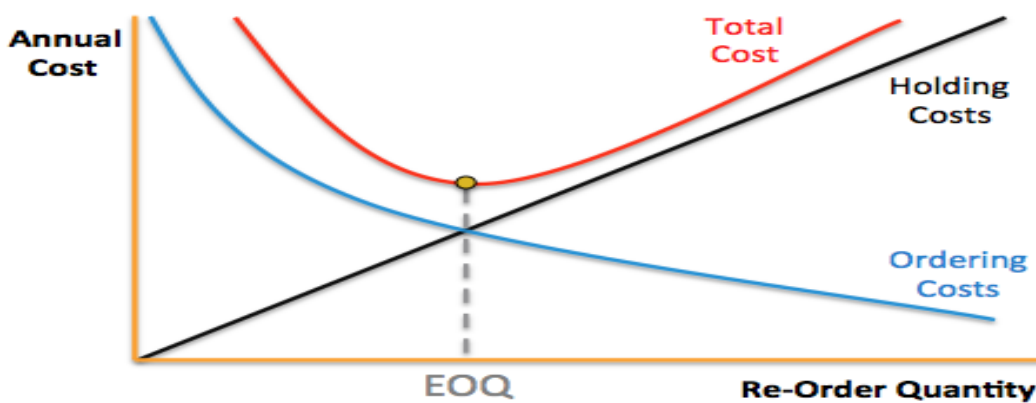


Figure 2 Economic order quantity model
Source: Lambert, Stock, Ellram, 2000.

This model in the figure number 2 is according to Tomek, Hoffman (1999) basic methodic approach to stock management which uses mathematical-statistical theories of stocks. Principle of model stays the same regardless, if the commodity is being produced.

Optimal size of delivery

According to Martinovičová (2006) the optimal size of delivery is such, in which under the given condition of consumption the overall costs connected with stocks are minimal. Big deliveries enable to decrease purchase costs per unit of delivery, but creates big stocks by which is increased costs on storing. Small deliveries have for sure opposite consequences.

The most broadened model for determination of optimal size of delivery is Harris-Wilson formula which supposes, that future consumption and its progression are known and costs influences are making decisions.

This formula depicts optimal size of delivery. D means expected overall need of deliveries. Nd means costs for ensuring of one delivery. Ns are costs for storing and maintenance of stocks expressed in CZK per unit of stocks for one day. T is length of planned period in days (year = 360 days, quarter=90 days, mont=30 days).

$$D_o = \sqrt{\frac{2 \times D \times Nd}{Ns \times T}} \quad (1)$$

Calculated figure is basement for decision. Optimal size of delivery will be determined with respect to amount of deliveries (Martinovičová, 2006).

Tomek and Hofman (1999) say that for stocks management is essential to observe several basic functional states of stocks. Most often is observed immediate stock and average stock. Average stock has meaning for monitoring and analysis of boundation of resources in stocks. Thus for stock management is essential to divide overall average stock (Z_c) on current stock (Z_b) and safety stock (Z_p). Current stock is possible to calculate as following (where D represents average overall order):

$$Z_b = D / 2 \quad (2)$$

Thus overall average stock is calculated as

$$Z_c = Z_b + Z_p = D / 2 + Z_p \quad (3)$$

3.4.2 Methods of stock management

There are exist lot of methods that is possible to apply in stock management of the company. On of them is ABC analysis which defined Oudová (2013):

1. **ABC analysis** comes from so called Pareto rule – 80 % of sales of given company is realised by 20 % of their customers. Petřík (2005) says, that technique ABC is used generally when starting priorities. And essence of ABC is fact that often small quantities from overall volume can create significant and decisive value. ABC analyses's aim is to classify products according to value of sale and according to participation on generation of profit in company. Purpose of such analysis is purposefully centralize financial resources to such stock that are really important for the company. Stocks of company are divided into 3 basic categories which are represented by letters A, B and C.

Stocks of type A are such stocks, that are the most important for the company and the most costly with respect to turnover of company. These stocks are standardized and they are delivered in fixed specified cycles. In standardization can be

used time standard of stock or it can be standardized stock in natural units or in financial statement. There is purposeful to regularly update state of stock, regularly recalculate expected demand and often perform book inventory (monthly). Stocks of type A create approximately 10 % products which are involved on 75% of turnover.

Stocks of type B – Regarding costs the stocks of type B are less costly and generically more diversified. Safety stock is bigger. There is determined stock limit => in given time when the stock decrease on that limit, is immediately ordered. Stocks of type B create approximately 20 % of products which are involved on 15% of turnover.

Stocks of type C – Regarding the variety, they are the most varied. These stocks include lowturnover units which are acquired always on the basis of the need. Stocks of type C create approximately 20 % of products which are involved on 10 % of turnover.

According to Martinovičová (2006) to this group is sometimes assigned fourth group D into which are assigned the materials of small value but with big consequence of their shortage.

Differential approach to individual groups of material is based on the fact, that to the materials of the group A and D is dedicated special attention where there is used of special methods and optimization calculations are conducted as accurately as possible. Within materials of group B is possible to admit particular simplification and materials of group C is possible to obtain by qualified estimate (Martinovičová, 2006).

In the figure 3 is depicted division of stock of method ABC

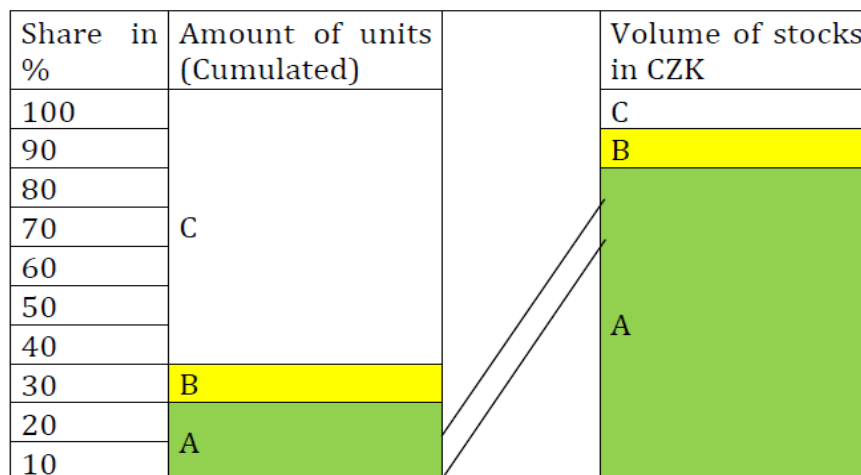


Figure 3 ABC division

Source: Economical and financial management for no economist, H. Scholleová 2008.

2. **MRP System** is material requirement planning. It is based on a principle when with computer software enables plan the consumption of material, stocks and

concurrently control of costs of purchase. This system application brings such questions like *what material and in what amount is needed? When this material will be needed?* That system is very often used by producers who produce more complex products as regards assembly. Basis for evaluation of needs is so called bill of material (BOM) which give, what amount of material is for production of product needed. The fact that this system doesn't take all the production resources into consideration is big disadvantage of this system. Completely doesn't take machine time and human labor force into consideration. So from that reason began to be applied the **method MRP II - Manufacturing resource planning** which take all the resources connected with production into consideration. It contains for example calculations of production capacity (Oudová, 2013).

Keřkovský (2009) adds another way of management which is optimized production technology (OPT) and this is concept of production management developed in 70th in USA. Conversely to MRP is focused on optimalization of production flows by maximal using of capacities of bottleneck workplaces.

3. **Just in time method (JIT)**

The aim of this method is get right stock on right place in right time. Stock is basically delivered directly into production, thereby additional costs on storing are eliminated. This method uses mainly the companies that produce cars or electronics. Philosophy of this method is that "best stock is no stock". Application of this method leads to improvement of turnover of stock, reduction of store space, decrease of costs for storing, decrease of distribution costs and decrease of amount of external suppliers. In using this method are placed demands on transport. Is needed to find carriers with whome is possible to make long cooperation, alternatively make strategical decision with respect to favourableness of using own, public or contractual means of transport (Oudová, 2013).

Miloslav Synek et al., (2006) speaks about modern approaches to stock management because resources bounded in stocks in significant level burden the companies by draining the capital and decrease possibility of his more profitable productive use. In this method is the aim to create such system of relationship between supplier and customer, which allows the customer doesn't have to sustain practically any stock.

4. **Toyota Production System TPS** – today is known rather by term **Kanban**.

This system is possible to use under any production where occurs to cyclic repetition of operations. The sense of this system is to provide material into production precisely in the time when is needed from the perspective of production process. System is based on on using of labels, so called Kanban cards.

It is distinguished between two types of Kanban cards: movement cards and production cards. Cards are attached to container with material.

Principle: In the time when worker of production starts to manipulate with material from particular container, takes movement card attached to that container and sends it to the center which ensures delivery of this material. For the center it is a signal for sending of another container with material as a substitute for container from that is material currently drawn. This new container has attached production card to itself. Before sending of that container, is that production card replaced by movement card and production card is handed over to center which ensures production of new material. In one time must be attached only one Kanban card to given container that is a thing on that is needed to pay attention (Oudová, 2013).

Keřkovský (2009) adds another way of management which is optimized production technology (OPT) and this is concept of production management developed in 70th in USA. Conversely to MRP is focused on optimization of production flows by maximal using of capacities of bottleneck work places.

3.5 Purchase

According to Martinovičová (2006) the purchase belongs to the most important business activities. The main function of purchase department of business is effective satisfying of needs which result from planned process of basic, auxiliary and serving production and non-production processes for example by: Deliveries of raw materials, Basic and auxiliary materials, Purchased products and components, Semifinished products, Spare parts, Tools, Preparations, Indirect material and preparations for management and administration, For social services and security of enterprise.

Tomek and Hofman (1999) add, that by the purchase are denoted all activities of enterprise whose aim is acquiring of tangible and intangible inputs to the enterprise. According to Kupkovič et al., (1997) is possible to characterize purchase as a set of activities of enterprise relating with determination of needs of material resources for securing of scope of business.

According to Synek et al., (2011) is possible to understand the term purchase as:

- Function – as a important task in the frame of setting of business activities
- Process – as a process of disposition with delivered goods
- Organizational unit – workplace to which is allocated purchase activity

3.5.1 Tasks of purchase

Martinovičová (2006) defines following tasks of purchase:

- Strategic purchase management which contains in particular:
 - Technical preparations of new and improved goods and technology of production, attendance on creation of purchase strategy of enterprise in the development phase

- Long-time research and forecasting of material needs and available resources
- Long-time strategy of purchase and business relations
- Strategic stock management
- Operative purchase management
- Material flow(logistics)
- Disposal of material

Synek et al., (2011) add another task of purchase: Clarification of needs, Determination of size and terms of need, looking for of suppliers, creation of order control and settlement of delivery, storing, removal from storage, observation of need.

3.5.2 Main phases of purchase

Martinovičová (2006) divided following phases of purchase:

1. Clarification of need and identification of necessity, character and range of need
2. Purchase decision and specification of product or service
3. Research of offers – purchase market research (suppliers)
4. Option of supplier
5. Decision and formulation of conditions of deliveries – placing an order
6. Logistic activities during entering of delivery to the enterprise
7. Quantitative and qualitative reception of delivery, possible complaint
8. Financial settlement – reimbursement of supply
9. Supplier performance evaluation

Miloslav Synek et al., (2006) say that the most important document is order form. Very important decision is determination of size and frequency of deliveries. Basically such decisions determine level of stock and amount of costs for purchase process and it is connected with relatively separate set of activities which are designated as **stock management**. Main condition is determination of so called optimal size of delivery in which the costs for replenish of stocks and for their maintenance are minimal.

Importance of successful prediction of need in purchase

Tomek and Hofman (1999) say, that quality of prediction of future need to great extent influences level of ensuring basic production. Prediction of needs and parameters of purchase market is exceedingly important set of activities of purchase department. On its quality depend another steps of purchase process as in the frame of strategical and tactical and operative management. Faults in prediction are shown for example by the fact that some needs are not satisfied in time and in required quality or if occur inadequate rise of stocks. Starting point of prediction is decision making about needs, it means determination if is needed to expediently

satisfy the need and if so that to decide by which way. Very important is analysis and evaluation of nature and behaviour of need as also requirements on its prediction.

3.5.3 Aims of purchase

Tomek and Hofman (1999) specifies following aims:

The first aim is to satisfy needs of company. It is the same when the human has some needs so as well the company has some needs for production process (Kotler 1991). The second aim is decreasing of purchase costs where the biggest risk is decrease of quality or growth of stocks. Lowering of costs is concerning with costs for subject of purchase and lowering of costs connected with purchase (transport costs, insurance). The third aim is increasing quality of purchase where condition of quality of purchase often create contradiction between conditions for quality on one side and parameters of offer on the other side. The fourth aim is lowering purchase risk where belong damages of political or natural environment, damages of sale market, damages of purchase market, damages of own company. The fifth aim is increasing of purchase flexibility which means, that the more the future is uncertain the more flexible must be planning. And the last aim is promotion of purchase aims oriented on public interests.

3.5.4 Purchase process – influencing factors

In the figure 4 are depicted factors influencing purchase decision

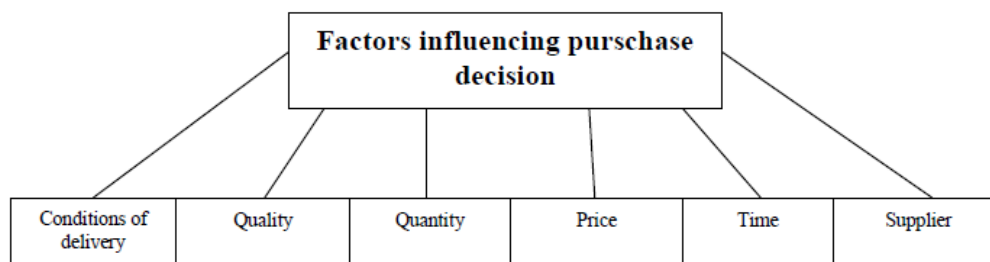


Figure 4 Factors influencing purchase decision
Source: Tomek, Hofman, 1999.

Tomek and Hofman (1999) describe these factors more detailed:

- **Conditions of delivery** – each delivery must be realized under certain conditions. These are delivery conditions and payment terms which must be in purchase contract which is very important part.

- **Quality** – the main aim is to purchase the most quality goods for the least prices
- **Quantity** – in purchase of material producer should follow these principles: How many of material will be used in production? What amount of loss is acceptable in production? What amount of material is available in storage in the time of placing an order? What is size of average stock?
- **Price** – *The best price doesn't always mean the lowest purchase price.* Therefore, the aim is ensuring of the highest value of goods meeting special conditions for the lowest purchase price
- **Time** – There is important the decision when to purchase material or services
- **Supplier** – Choice of good supplier is one of the main factors which is an assumption of good purchase. Suppliers should be picked up according to needs of businessmen.

3.5.5 Choice of supplier

Choice of supplier is extremely important case of every company (Záboj, 2007). Kubíčková (2006) says, that one of the most important tasks of purchase department is performing of purchase market research and subsequently choice of supplier. It means acquiring of such information that helps us to choose optimal supplier. As a source can serve evidence about performance of suppliers that the company already cooperated with, actual information of buyers, workers of sale, management of production and quality, technologist and so on. It can be also marketing purchase news, advertisement, supplier's advert, brochures, catalogues, prospects, information acquired on exhibitions and trade fair, trade press, reports from business meeting, reports from business travels, experiences of other subscribers.

The most important information of purchase department are knowledge about suppliers (image, financial and technical ability with performance and ability of subject of supplying, volume of delivery), about surrounding environment of suppliers in the market, about ways of acting of suppliers. Special importance has facts about structure of costs of supplier and his cooperative readiness.

There are following most used criteria during making decision about supplier: ability of delivery (amount and performance), quality, reliability and preciseness, price, discounts, surcharges, level of services, service, technical and innovative abilities, performance of management, production capacity, consultancy and technical assistance, system of controlling quality, reputation of the company, goodwill, image, financial situation, attitude to purchaser, level of communication, management and organization of sale, quality of packaging, moral and law aspects and its compliance, working relations within the company.

Basic meaning for quality of choosing decision has especially kind and amount of picked criterias. For example price and delivery period can not be only the one criterion of important material and extensive volumes during supplying. Miloslav Synek et al., (2011) add that wrong choice of supplier can lead to losses that is very difficult to liquidate during own purchase process.

Tomek and Hofman (1999) summarized, that deciding about supplier belongs to dominant decision of purchase department. Success of decision influences to a great extent costs of purchase, stocks, quality of production as also results of the company on the market during sale. Meaning of that decision making increases in connection with globalization of the economy and with rise of possibilities of purchase from different suppliers. On decision making is not participate only purchase department. Very important is to clarify the functions that come into consideration when making purchase decision. These are the functions of users, influencers, prescriptors, decision makers, purchasers and financiers. When decision making is done, are considered a variety of criteria which is possible to divide according to that, if they are concerning products with services, prices and contractual conditions and also behaviour of supplier itself. Price is not always the most important factor: Significance has particularly quality of deliveries, payment and delivery conditions and also behaviour of supplier in extraordinary situations. So that the decision making about supplier would be successful and would be eliminated possible errors, is essential the company constitute purchase decision team (purchase centrum) and precisely state proces for decision making according to value of purchase and significance of purchased raw materials, materials and products in terms of prosperity of the company.

3.5.6 Evaluation of suppliers

According to Kubíčková (2006) another task from purchase department is systematical evaluation of suppliers. In the practice is possible to find many evaluating systems. Generally is known following procedure:

1. Creation of the list of factors of evaluation.
2. Assignement of realtive importance to individual factors.
3. Determination of evaluation scale.
4. Evaluation.

Here doesn't exist some warranted or the best way how to evaluate suppliers which would suit for each organization. Here is important, the company uses consistent methods which woud increase objectivity of process of evaluation. Such selection of right supplier has immediate and long-term effects on the level of customer service which the company provide.

Tomek and Hofman (1999) add, that purchase department systematically evaluates suppliers according to criterias which took into consideration in the phases of their choice and which were for decision making the most important. Information acquires from own operative information base (evidence of deliveries, reclamation, urgencies, solved conflicts, defects in deliveries and so on) and also from users (intercompanies consumers).

Evaluation of suppliers is possible to realize also according to the fact as was fulfilled expectations that the subscriber placed. As for example: possibility to acquiring of discount for bigger amount of purchased goods, willingness of supplier to supply according to need also very small amount of products, providing rebate for overall volume of purchase for particular period (according to agreement), demanding only adequate provision for fulfilment of extraordinary fast delivery, willingnes to agree on time plan of deliveries, transimision of timely

information about changes of product and services, guarantee of needed technical support and many others (Tomek and Hofman 1999).

Tomek and Hofman add that determination of suppliers conducts purchase department according to acquired information. For classification to appropriate categories is responsible leader of purchase management. When making decision of supplier, it is done following approach depicted in the table below.

In the figure number 5 is depicted categorization of suppliers.

Category	Description	Characteristics
A	Certificated supplier	Its deliveries permanently corresponds to quality requirements expressed in the contract, is supplier with valid certification or accreditation for activity, express acceptable price and other contractual relation.
B	Permanent supplier	Deliveries permanently relates to contractual paramaters, express acceptable price relations as next contractual conditions (deliver, payment)
C	New supplier	According to results of market research and evaluation expresses parameters od delivery corresponds at leas supplier of category B
X	Inconvenient supplier	Delivered products are not comply with stated requirements and agrred parameters of deliveris (qualitative, price, logistics, time and so on.)

Figure 5 Suppliers division
Source: Tomek, Hofman, 1999.

In final decision are taken into consideration only suppliers, classified only into the group A, B or C. With suppliers of the X category the subscriber can not consider this supplier (Tomek, Hoffman 1999).

4 Practical part

Practical part is focused on application of theoretical knowledge. This part especially deals with the tasks of stock and its management in selected company Gala a.s. In the introduction is general description of company, its history of origin of this company, organizational structure and there are also described products that the company produces. Further there is analysed current state of stock management in this company and on the basis of identified results are suggested new recommendations for more effective stock management.

4.1 General description of the company Gala a.s.



Figure 6 Company's logo
Source: Company's website

The name of company:	GALA a.s.
Seat of company:	Prostějov, Západní 75, 797 32
Identification number:	499 69 820
Legal form:	Joint-stock company
Statutory body:	Board of directors
Scope of business:	Commercial and mediation activities, Production of sport Products, Manufacture of textile, Manufacture of leather, Road motor transport, Rental of buildings and providing of the other than basic services, Hostess activity, Accomodation services, Locksmithing, Wholesale, Specialized retail, Manufacture of sport equipment, Retail trade operated out of proper place of business, Manufacture of heavy-stitching and saddlery goods, Manufacture of textile goods (except clothing and accessoriess), real estate activities
Website:	www.gala.cz

Gala a.s. is purely Czech company with more than 60 years tradition. Company was established in 1949 and in the year 1996 was the company privatized. In the beginning was the company established as producer of heavy-stitching products as keyrings and small leather articles. It was only products from natural leather but later in the period of artificial leatherette development it was mainly leather and leatherette bags and satchels. In the period of totalitarianism was the company mainly known for production of typical cotton rucksacks. In 70th years the company has developed technology of volleyball balls and till these days the company has become the only front producer of these balls in the Europe.

In the picture number 7 is location of the company in the map of the Czech Republic (Prostějov and Rýmařov)



Figure 7 Location of Gala a.s. company
Source: Own creation

Current production

Company specializes on production of heavy-stitching accessories and equipment and production of volleyball balls – which is the only one in Europe.

Further, it is selling of additional balls, which the Gala company resales under the own brand Gala. These are such balls, that the company purchases (for basketball and football), because there is needed handmade production and such production is very expensive in Czech Republic. Only company's balls are sold under the brand Gala.

Further, company works for supranational companies as Stihl, Decathlon and Scott where it is used the concept of business to business. Company develops (making of draft and construction under the specialized development technical department) goods which are then manufactured under the other brand.

These are special carriers on:

- grass-cutters
- carriers on oxygen cylinders
- box sacks
- company also has been developing another new program which is children's carriers

Company mainly takes advantage of production of smaller series which gives to the customer the warranty of fast delivery, perfect performance and possibility of controlling by customer. It is concerning mainly special goods difficult for sewing, security and so on. It gives advantage to the company against China, which is the biggest competitor in that market since China does mass production and where the labor cost is much cheaper.

Organizational structure of the company

Because Gala a.s. is joint-stock company, it includes some bodies of company. It comprises from General Meeting, Board of Directors and supervisory board.

Gala a.s. is manufacturing company that employs 268 workers. Company is certificated by ISO 9001 : 2008 which describes whole process of the company - who is responsible for what. And in current time is working on introduction of environmental certificate.

Company is lead by general manager Mgr. Michal Preininger who manages and response for activity of joint-stock company. Company is lead in two levels, the higher level are both economic and general director who manage managers of particular departments as managers of purchase, export, special projects, quality, development, production and technical preparation of production. General director and economical director manage the company in accordance with requirements of owners and they delegate individual tasks on appropriate managers.

In the recent years, the company has been expanding production, so the company has branch plant in Rýmařov and is going to open another in Janovice.

Composition of individual departments

Gala a.s. is composed of technical department with 1 manager, who monitors referent of calculations, and 3 technologists. Economic department with one economic director and personal manager with other referents. Sales department with manager for domestic sale and 4 managers for export sale which are strategical managers, where each manager takes care of concrete customers. Purchase department with 4 managers which are bound on export managers so that, they can create a team and to the customer can provide entire service. It is so called full service for customers and in case of some problems or solving of some things it is team work. This works only between these two departments. Then it is production management where there are 3 managers. Company includes another managers as development manager, manager of special projects and manager of quality.

4.2 Analysis of current state of stocks

Because the aim of this work is optimization of stocks, is needed to analyse and describe current state of **material** stocks which was demand of the company. Company Gala a.s. is production enterprise which has stocks to which must pay big attention. Because of the fact that in stock are bound financial resources, the way of stock management plays very important role.

Supplying of the company ensures purchase managers. Each purchase manager manages stocks (what purchases) that fall under their competence. As was already said, the purchase department closely cooperate with export department. It is concerning ensuring of material for production, looking for of new suppliers together with evaluation of suppliers, sustaining of optimal state of stocks (level of stocks), ensuring of compliance of planned turnover of stocks of material, managing of warehouse. Each month company conducts economic analysis of stocks where is also observed mobility of stocks (not used stocks), where is then discussed the next dealing with that stocks.

Description of purchasing process

Organization manages material stocks and the whole process of purchasing according to directive ISO 9001 : 2008 – called TOP Purchasing. Purpose of this organizational directive is to state and sustain rules for ordering, purchase, verification and sustaining of state of stocks of purchased material by customer and services for production of Gala a.s. For these activities is responsible administrator of directive – purchase manager.

The basic principle of purchasing is accurate specification of requirement, evaluation of suppliers of materials for production, verification and records about fulfilment of requirement. Directive specifies 6 procedures of ensuring of materials:

- procedure of ensuring and purchase of overhead material and services
- procedure of ensuring and purchase of production material according to production order
- procedure of ensuring of material delivered by customer
- procedure of purchase of goods
- procedure of ensuring and purchase of material for new products
- purchase of material except production orders – where could be new potential materials

Formation of material requirement

Material for ensuring of production orders that are regularly repeated is ordered in advance for ensuring of fluent production. Purchase manager is in close contact with sales department and regularly consults future production according to customer requirements. When the sales department get the order from customer, then create in information system production order. This production order is then passed to the purchase department where is stated number of item, description of product, needed quantity and term for the need to be on stock. Appropriate manager of purchase create an order in information system, where acquires needed information about material consumption and stock of individual materials in storing. On the basis of this information the purchase manager evaluates, if the order can be immediately produced, or if it is necessary to order new material. In the case the material is available and is not booked for other production, the purchase manager confirms to sales department that the material is prepared for production. In the case the material is not available the purchase manager confirm terms when the material will be on stock. On the basis of these confirmations is corrected production plan. Purchase managers have own excel charts in which observes situation of material and on the basis of this chart can order another needed material (or delete already used material). Production plans are still being changed so purchase manager must constantly calculate if in warehouse is enough amount of material. This planning is carried out out of information system so it is very hard for purchase manager to state optimal order and simultaneously doesn't have excess of material in warehouse.

Choice of supplier and evaluation

For ensuring of quality of the whole production process and mainly of products, the Gala company has created procedure of **evaluation of suppliers of production materials**. Evaluation is permanent activity conducted by responsible workers of purchase department. Evaluation is conducted out of accounting system in excel charts (out of information system). Each supplier is evaluated on the basis of following aspects:

- price
- fulfillment of lead time
- provided servis
- certification
- quality of material and goods
- influence on environment

On the basis of evaluation of all aspects are assigned groups A,B,C,D to each supplier, where A is the best supplier and is recommended, B supplier company accepts, C supplier is for disposable supplies and D supplier is denied. If the circumstances doesn't determine otherwise, the purchaser manager chooses according to results

in sequence A-B-C-D. Such evaluation is conducted once per year. It can happen, for example, that choice of supplier must be done according to requirement of customer. In such case the company must choose this supplier regardless of evaluation ABCD. Or, if there are any reasons for requirement of choosing the supplier which doesn't fall into ABCD group and was evaluated into group D than the purchase manager is allowed to order from that supplier only with consent of director general (for example delivery for great price).

General overview of levels of purchases and sales in the years 2010-2014

Company Gala a.s. puts big emphases on the monthly level of material stock on the main and hand stocks (material disposal for production in the process). Purchasing department is responsible for the main stock. So that I could find out if the company manages stocks effectively and is able to adapt to changes, is needed to compare development of sales in given years (2010-2014), its increase or decrease with development of purchases in given years (2010-2014) and in the end evaluate, if the purchase management adapts to decrease or increase of sales.

In the two following figures number 8 and 9 are depicted graphs with individual developments of sales and purchases in the years 2010-2014



Figure 8 Development of sales in the years 2010-2014
Source: Own creation with the usage of company's data.

Development of purchases in the years 2010-2014 in mil. CZK

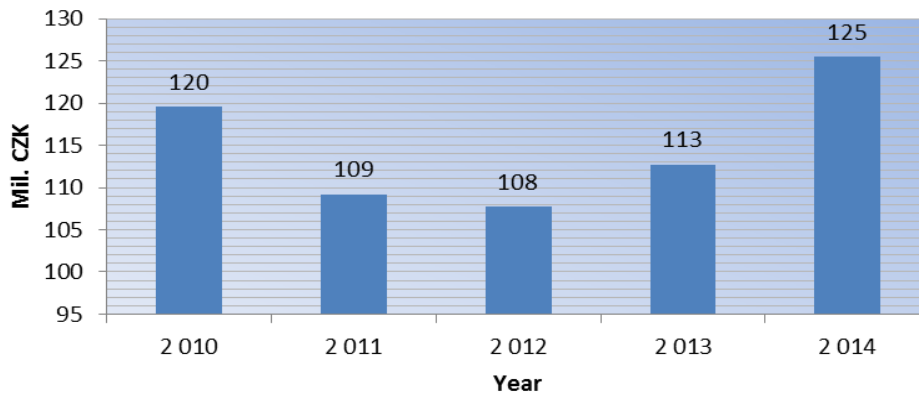


Figure 9 Development of purchases in the year 2010-2014

Source: Own creation with the usage of company's data

During years 2010-2012 sales developed very similarly. But with comparison of the year 2012 the sales in the year 2013 increased by 12,6 %. It was mainly because of the reason that company gained new customer who constantly increase turnover which is appeared also in the year 2014. That increase was also caused by german customer because this company has done some organizational changes that brought decrease of prices for customer but for Gala a.s it meant increase of production volume (comparisions in % are done with accurate numbers).

In comaparison, the levels of sales and purchases in given years is possible to see that in the year 2010 and 2011 the sales decreased by 6,4 % and purchase decreased by 8,6 %. In the years 2011 and 2012 the sales increased by 1,31 % and purchases decreased by 1,4 %. In the years 2012 and 2013 the sales increased by 12,6 % and purchases increased by 4,6 %. And in the years 2013-2014 the sales increased by 12,7 % and purchases by 11,3 %. From that figures is obvious that the purchase department was able to adapt purchases to decreased or increased sales in given years. Increase or decrease of purchase and sale could influence exchange rate of particular currencies. Thus small deviations can be cause by that. The biggest incomes are in Euro but purchases are in USD, CZK, GBP and euro.

From these two figures is clear that development of purchases basically copies development of sales which means that purchase adapts to sale. So here we can see that above described cooperation between sales and purchase department works effectively. And is clear that Gala company manages stocks in effective way.

4.2.1 Valuation of material

As regards material the Gala a.s. has only production material, overhead material and delivered material (such material is separate, it is not property of Gala) and separately has protective aids. Valuated is only production material, which enters to calculation, not the overhead because such material doesn't enter to calculation.

Production material is valuated by following way: Purchasing manager when receives price offer from his supplier firstly must control if this price is given with delivery condition what we can see in below chart. This condition specifies which extra cost are included in the price or if the price is DAP, what means that the price is all in up to company. If there is needed to add any extra cost, manager must calculate other needed services like transport, duties, insurance. Manager must take into consideration rate of currency what is important as well.

Next step is to fill these up to certain intern document where are written data like description of material, supplier, rate of currency, if the material is delivered or not and mainly the price which will input to product calculation. Valuation of material is very important for next steps to calculate particular product and creation final price offer to customer.

In figure number 10 are depicted delivery conditions

Allocations of costs buyer/seller according to Incoterms 2010

Incoterm 2010	Export-Customs declaration	Carriage to port of export	Unloading of truck in port of export	Loading charges in port of export	Carriage (Sea Freight/Air Freight) to port of import	Unloading charges in port of import	Insurance	Loading on truck in port of import	Carriage to place of destination	Import customs clearance	Import taxes
EXW	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer
FCA	Seller	Seller	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer
FAS	Seller	Seller	Seller	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer
FOB	Seller	Seller	Seller	Seller	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer
CFR	Seller	Seller	Seller	Seller	Seller	Seller	Buyer	Buyer	Buyer	Buyer	Buyer
CIF	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Buyer	Buyer	Buyer	Buyer
CPT	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Buyer	Buyer	Buyer
CIP	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Buyer	Buyer	Buyer
DAT	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Buyer	Buyer
DAP	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Buyer	Buyer
DDP	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller

Figure 10 Delivery conditions

Source: Company's data

4.3 Used methods of stock management in particular productions and its problem issues

As was said in the beginning, the main customers of Gala a.s. are **Stihl, Decathlon, Scott, children careers and production of own volleyball balls.**

Method of purchasing and amount of storing stocks is dependent on the type of requirement of customer as is for example possibility to gain forecast of goods in particular time period and quantity. If the customer has the same type of products or change assortment and in case of production under own brand the company manage sale and also purchase of material by herself. Thus individual methods of management for particular production are following:

Stihl

The biggest customer of the Gala company is company Stihl and represents around 50 % of production. Company has long-term cooperation with that company and in current time produces around 50 types of goods for this firm. Gala a.s. has marked materials which are mainly used for this production and base on that is able to state amount of stock in given month. Purchase of material for this specific production is planned on the basis of customer's forecast and production plan. Production plan is created out information system Gala and is being changed very often on the basis of change of requirement of lead time of customer or in the case of changes of priority of other production orders. Consequently, purchase of material is in the terms of flexibility.

Material is basically ordered on stock immediately to be available, what can sometimes cause high amount of stock. According to purchase strategy the manager works with the aim to have minimally 2 and ideally 3 suppliers on each key material. This measure significantly decreases the risk of stopping production in case of failure of only supplier. Within this company the Gala a.s. creates safety stock in finished products not in material because customer changes requirements very often. So the financial resources are in finished products, not in material and it doesn't concern purchase department but sales department.

If it is concerning stock management for company Stihl, for this production manager observes around 500 materials which is very time consuming and observes production plan for month and plans forecast of supplier in the time when orders are still not placed. Chart is filled by manager always in the end of each month where is written level of stock of each article and planned consumption in given months. It means that manager must create balance of all planned products in quantity and data about need of material transfers by hand again into the chart (concerning these 500 items). So it is very hard in this very exacting system to evaluate financial level of individual items from capacity reasons. As was already said, level of warehouses for individual production is observed every month and it is observed only overall level.

Decathlon

Another significant customer is the company Decathlon. Production for this company is mainly production of punching bags. Basic material (fabric) is supplied by company Decathlon what is big advantage for company Gala. There are not bounded financial resources. Customer has big requirements on material. One of the most important component in this production are metal chain hangers where are needed big strength requirements. For a long time the company (Gala) could not find second suitable supplier which is strategical aim as was said in previous part. This was very risky for company, because if something happen for example bankruptcy of the company, then this would stop the whole project. The lead time of this component was half year to year because unsufficient capacity of the supplier. Now the company has two suppliers and it improved terms of delivery and the company can fluently produce. Gala a.s. is not allowed to create safety stock in finished products, they can not produce without order of customer. There is problem because purchase manager must estimate size of delivery for exapmle according to last years (because of lead time) and therefore can arise excess of such material in warehouse.

Stock management for the company Decathlon conversely to the production Sthil, the manager observe around 40 items which is substantial difference. On the other hand production of these products (punching bags) is conditioned by obtaining of textil waste when in current time the company processes 2, 5 thousand of tones per year of this waste. Company doesn't purchase this waste, the strategical aim of the company is to acquire such waste for free and only to ensure transport. This process is very difficult in terms of time and communication. Manager doesn't work with production plan so strictly and constantly observes actual production. From the reason that manager observes only 40 items, he doesn't have to create any planning charts as was in previous production and can observe each material individually in information system. System is able to evaluate amount of material needed, which order was already released and what amount is still needed to the production. There is also information of actual state of main and handy storage. Manager works with this handy storage unlike other.

Scott

Another significant company is Scott which is the company which is focused on the production of rescue products. It is concerning very specific material with big requirements on the flammability class. These materials are expensive and the company must purchase in minimal lots. It means that small quantity is stored for big amount of money. There is big risk for example if a change of design occures and material could remain in the warehouse unused and there is no way to use it in other production as replacement or something like that (nonflamabel material). Here the company purchases plastic buckles where Gala enetered into agreement about consignment stock which means that this company provide this buckles to Gala on this stock and for this buckles invoicing in the time of consumption – in the

end of the month. It improves cash-flow of the company because there are not bounded financial resources.

Children carriers

Another production is production of children carriers. It is mainly trendy production which means that patterns of that children carriers are subjected by fashion trends so there are often changes of fabrics design so in this production is the purchasing completely different. Company must purchase precisely according to contract so that the material would not remain unused. Nevertheless the advantage is the fact that majority of that material is delivered by customer. It is very precise work to supply this production (different etiquette and so on).

Volleyball balls

The last is production of volleyball balls. Purchasing for this the company manages by herself. Purchasing is taking place on the basis of meetings with sales managers who say what amount of products is going to sell in following half year and year. So the purchase is conducted on the basis of demand of these sales managers. Monthly are just secured states of items of warehouses.

5 Recommendations

From the above described methods is clear, that each customer production needs different access to stock management. Gala a.s. has 5 different productions that need different way for management of material stocks. From two graphs depicted in pictures 8 and 9 is apparent that Gala a.s. manages its stocks effectively and is able to adapt to changes because uses lot of tools for optimization and is managed by directives, but from above stated methods of managing is clear, that there are lot of things that is possible to improve and such improvements would lead to even better results than they are now.

For each stock management is very important to have good production planning and for example here is possible to see main problem. Production planning and purchase planning run separately for each production out of IT system and is not centralized. As was said each manager has created a chart where put data from IT system and do own analysis. This system requires very good communication. In Gala a.s. has been working accounting system for two years but workers are not sufficiently familiar with that system. Thus is needed to focus on particular productions individually and then propose recommendations. In this chapter are recommendations suggested on the basis of defined problem issues in methods for stock management.

Stihl

Here is suggested to divide items on the basis of Pareto rule on ABC where A will be items with often purchases and items which bound highest financial resources (fabric in sqm).

Is needed to analyse the most important items and retroactively evaluate development of this item year backward. With items B I suggest to create also analysis and if such items don't create big financial burden than is possible to create safety stock. With items C I don't recommend any analysis because mostly in the practice are such item from financial view unimportant and here is possible to create stock.

For stock management is essential to observe several basic functional states of stocks. Most often it is overall average stock which has meaning for monitoring and analysis of boundation of resources in stocks. Overall average stock Z_c , where Z_b is current stock and Z_p is safety stock is calculated according to formula (2) depicted in the theoretical part.

In chart number 2 is depicted consumption in given years.

Chart 2 Year consumption (P)

month	Year consumption (P)	
	2013	2014
1	27 000	16 720
2	32 325	22 672
3	13 670	10 184
4	22 283	13 689
5	15 553	11 449
6	12 464	13 680
7	13 680	12 160
8	12 160	7 019
9	9 120	16 720
10	14 744	16 659
11	18 240	12 160
12	6 080	13 537
Total	197 319	166 649
Average	16 443	13 887

Source: Company's data

In this chart are depicted individual orders.

Chart 3 Chart of individual orders

Order/delivery (D)	Average delivery
12.9.2014	57 905
27.5.2014	
21.2.2014	
5.12.2013	46 012
27.6.2013	
27.6.2013	
22.1.2013	

Source: Company's data

With the usage of formula (2) and adding real company's data depicted in chart 2 and 3, is essential to firstly calculate current stock $Z_b = D/2$, where D is average overall order from the year 2013 and 2014:

$$2013: Z_b = 46012/2 = 23006sqm$$

$$2014: Z_b = 57905/2 = 28953sqm$$

Safety stock Z_p was calculated for satisfaction of consumption for the period of 2 weeks as: 2013 $Z_p = 7\,673$ sqm and 2014 $Z_p = 6\,481$ sqm. Thus the overall average stock is calculated according to formula (3):

$$2013: Z_c = 23006 + 7673 = 30679sqm$$

$$2014: Z_c = 28953 + 6481 = 35434sqm$$

With this result is possible to calcute amount of turnovers N_o and turnover time T_o (where P is year consumption) in given years by following formulas:

$$N_o = P / Z_c$$

$$T_o = 360 / N_o$$

With the usage of real data are the formulas following:

$$2013: N_o = 197319 / 30679 = 6,43$$

$$2014: N_o = 166649 / 35434 = 4,7$$

$$2013: T_o = 360 / 6,43 = 56days$$

$$2014: T_o = 360 / 4,7 = 76days$$

By summing all it up is possible to compare given years:

Year 2013:

$$Z_c = 30\,679\,sqm$$

$$N_o = 6,43\,x\,per\,year$$

$$T_o = 56\,days$$

Year 2014

$$Z_c = 35\,434\,sqm$$

$$N_o = 4,7\,x\,per\,year$$

$$T_o = 76\,days$$

With regard to fact, that for entrepreneur is important to increase amount of turnovers and decrease turnover time is clear, that nobody doing such analysis. From these results is apparent that turnover time was longer in the year 2014 than in year 2013 so nobody is doing such analysis. So the company should assess, if

would not be better to increase amount of orders in less quantities. Effect would be decrease of financial state of these stocks.

Whereas the company has good experience with consignment warehouses as are applied in another productions, the company should try to suggest to supplier of plastic buckles implementation of consignment warehouse. In this production are needed very expensive production forms so the company cannot afford second supplier and is dependent on this supplier which is big risk in case, if the company has problems and doesn't have created some safety stock in Gala a.s. Consignment warehouse would enable substantially decrease warehouse stock and also create safety stock which indicates that is very needed. Company can suggest this consignment warehouse to the supplier for example with change of condition of maturity of invoice. In current time the company has maturity 90 days and can be suggested decrease of maturity by 30 – 45 days.

Decathlon

One and only problem in this production is long delivery time as was already said. Here would be good to try to agree with supplier on consignment warehouse because production is repeated and items don't change and there are not many of them. It is management system just in time and level of stock is for this production the lowest.

Scott

As was already stated, purchased items are very specific and material is very often produced in big minimum quantity orders and from that reason the movement is very small and material can be here for many years, which is very risky that material remain in warehouse in case that customer changes for example design. Such stock has therefore small turnover and bound bigger financial resources. Suggestion is to very closely cooperate with customer and call attention the customer, that have concrete items in warehouse and in case that change design and items remain on stock the customer such material will purchase (because customer choose the supplier). For that reason is not possible the Gala a.s. suggest another supplier who has for example smaller amount of minimal order quantity. As suggestion is possible only the agreement with supplier.

Children careers

If I take stocks of material on children carriers, since 80 % of material the customer delivers by itself, there is no need for optimization of stock. Remaining 20 % of material is possible to easily manage. One and only lack that was found out, is at some of purchased fabrics is only one supplier which is very problematic, therefore the company should focus on getting another, for example visit trade fair of this fabrics.

Volleyball balls

Even it is the smallest production from all, stocks are quite high from the reasons of minimal quantities. Stock for this production is around 20 % of all material stock with low turnover of stock. Here was found out only one solution as decrease of stock that company would consider, if doesn't have too big assortment on which must keep such stock. In case of decrease of design series of balls would also decrease stock but this the company must consider alone with her marketing department.

General recommendations

Standard tools of optimization of stock are consignment warehouses which company uses but as was said in some productions company should try to implement it. Another possibility is observing of little moving stock which the company also conducts once a half-year, but can more often. In the past the company discarded big amount of stock for x millions but has not tried to sale them, what is seen as missed opportunity. On the other hand, the company found another usage to other production with lot of stock.

As was stated, Gala a.s. has been using new information system for 2 years which is able to optimize purchase management but due to inadequate knowledge of this system, is not fully used and is not checked if would have its benefits or not. Managers of various departments were not sufficiently become familiar with functions of this system and still create difficult analyses in charts out of system which doesn't have to be the most effective way. Therefore the company should invest the time of employees so that they can check possibilities of this system. For example, if this system would bring some benefits and optimization would occur.

6 Discussion

The aim of this thesis was to evaluate the stock management in the company Gala a.s. and propose measures for its improvement. As was found out (graph in pictures number 8, 9), the company manages its stocks effectively because it is able to adapt various changes. But there doesn't exist any company where wouldn't be anything, what could be improved. In practical part I tried to focus on areas that the company could change and it could lead to even better result than they are now. So, on the basis of identification key problem areas I suggested some proposals that could lead to more effective way of stock management. I had to focus on 5 particular productions and suggest some recommendations suitable for that production. Within the company Stihl, there was problem, that manager works with big volume of products so it is very hard to observe everything. My suggestion was to divide item according to Pareto rule, where the items with biggest boundation of financial resources will be A group on which the company should focus and do some analysis, that is able to show what amount of resources is bounded in these stocks and what is turnovertime of that stocks. According to these results can the manager adapt its purchases. Concerning the company Decathlon, there was only problem with long delivery time and manager must estimate the size of delivery for long time in advance and thus can happen, that order bigger amount of material than is needed and by that will arise excessive stocks. Because of the fact that production is repeated and items don't change and there are not many of them, would be good to agree with supplier on consignment warehouse what would mean that company would pay only for the item that were produced. By the company Scott, the Gala company has prescribed supplier from who must order material. So, company can not for example suggest another supplier who has for example smaller amount of minimal order quantity. So suggestion was to cooperate with customer and call attention the customer that has concrete items in warehouse and in case that change design and items remain on stock, the customer such material will purchase. Main problem defined within Children career was, that company cooperate only with one supplier of fabrics, so the company should focus on getting another, for example visit trade fairs of this fabrics. Within the production of volleyball balls, where is very low turnover of material was solution the company should consider, if doesn't have too big assortment on which must keep such stock. Another problem was insufficient knowledge of new implemented system that basically works on the system MRP and could optimize lot of things automatically, so it would be a shame if the company would not familiarize more with this system.

7 Conclusion

Stock management is key area in company and therefore is necessary to dedicate to stock management especially big attention. So that the company would be successful, must have created such management system which will be able to harmonize production and nonproduction processes in the company, so that they would be fluent and without unnecessary lags. Every subject also tries to expend minimum of costs for the need of stock management because in stocks are bounded big monetary resources that can be used in better and more effective way.

Bachelor thesis was created focusing on the topic stock management in the company. The aim was to evaluate actual system of stock management in concrete company and on the basis of determined problem issues, to propose new, which will help to make current way of stock management even more effective than it is now as was found out from graphs. Analysis was created for the period 2010-2014 on the basis of data from information system of Gala a.s.

The work is divided to two parts, and it is literature review and practical part. In the first part of bachelor thesis, the literature review, are explained basic concepts from logistics, business economics, stocks and its management, needed to understand this issue. One part was dedicated to property in general, then stock in general like definition, way of management, methods for management of stocks and in the end the purchasing. In practical part is introduced profile of the company Gala a.s. with its production program and organizational structure of the company. Next was described current state of stock management in the company, if the company manages stocks effectively or not. Especially is described process in purchase department which takes care all things around stocks. On the basis of acquired information are formulated new recommendations which could contribute to improvement of current stock management in the company.

In current system of stock management was found out that company manages stocks effectively (graphs 8 and 9) but there doesn't exist any company that is perfect and there would be nothing for improvement. With defining some problem issues in particular productions I suggested some new methods and recommendations for management. Especially it is about cooperation between purchase and production department and doing more analyses within particular productions (Stihl). As was said the solution could be better using of information system and doing analyses ABC (in production for the Stihl) where the company should focus on particular groups. Another problems that were defined mainly concerned with agreement between companies and looking for a new supplier.

All recommendations and proposals of course are dependent on possibilities of the company. Suggestions was created so that to maintain simplicity and implementation of that recommendations would not be too financialy and timely exacting.

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