

MANAGEMENT OF RECOVERY PRODUCTS PRM (PRODUCTS RETURN MANAGEMENT)

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Abstract Product Recovery Management (PRM) includes management of use and worn out products, components and materials. The aim of recovery management product is retrieval the economic and ecological value and it is leads to reduction of the final waste. Note, that traditional approach many Producers is very shallow. Producers for many years din not pay attention on re-use of many products. Products have been designed in such way, that assembly and distribution were limited to a minimum. First of all concerns were triggered by fear of additional charges for “green product”.

Paper type: Research Paper

Published online: 19 October 2015

Vol. 5, No. 5, pp. 427-433

ISSN 2083-4942 (Print)

ISSN 2083-4950 (Online)

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Keywords: *PRM, management, ecology*

1. INTRODUCTION

In recent years, increased disposal costs of products, storage and combustion. Many companies were forced to consider issues of worn out products, which could be threat to their business. In conjunction with rapidly changing in regulations and customers expectation were needed modifications in economic activity. Organizations, which take care of environment, can be attractive for many ecological customers and workers. Production more green articles may reduce future liabilities, insurance rates and customer service costs. In addition companies could be re-use rejected products as a valuable source components and materials. However all activities should based on effective diplomacy of product recovery management PRM. The basis for action is depth analysis of enterprise and all problematic lines. Required information to analysis of PRM can be divided into four categories (Huber, 2010, p. 61):

- information about composition of products
- information about product size
- information about target markets of products
- information about waste recovery

The first category of information includes composition of fabricated products. The collection of information contain (Bertrand, 2011, p. 36):

- analysis of various materials
- types
- relative amount of products
- value
- nature
- potential dangers
- the way of storage
- product recovery options.

It contains also analysis of technical feasibility.

The second category includes the supply side of products, components and materials (Bertrand, 2011, p. 39). Producers are forced to investigate a size and doubts related with products. The next group of information explains where the products goes and in which way will be used. The last category inform about methods of re-use. Every company has available a couple options of the products recovery.

As Table 1 shown, companies may use one or more options from PRM system. In this case their inverted logistic system should be designed accordingly with PRM. Correct planning and logistics organization feedback is fundamental for PRM.

Nowadays management resembles a journey through the rapidly changing internal and external surrounding. Depending on the changes on the outside, the company, as part of the environment, must still learn, make changes in the structure and organi-

zation of production. The knowledge of management processes helps determine the strategies and lead it into the future.

Table 1 Product Recovery Options

PRM option	Level	Required quality	Obtained product
Repair	Product	Restore the product to full suitability	Some parts are repair or replaced the new one
Renovation	Module	Check and update all modules	Some modules are replaced or exchanged the new one
Regeneration	Parts	Need to check all parts and modules for purpose of update	Used and new modules, new parts in products
Recovery	Selective recovery	Depends on the degree of consumption	Some parts can be reused while others discard or recycle
Recycling	Material	It depends on type of regeneration	The materials used in product again

In the modern recovery management products are becoming increasingly important new technologies that are the foundation of changes. New technologies, in the business environment and, above all, increasing competition and customer demands, the challenges faced by the processes of globalization is the modern organization. The changing in organization surrounding have diverse influence on its functioning. Flexibility to constant changing, environmental monitoring, focus on cooperation and development are more important direction in functioning of modern organization.

2. WASTE PRODUCTS

2.1. Waste management – recovery products

The issue of sustainability is one of the most important challenges facing the modern enterprise, and among a number of concepts which are essential concept of recovery management products occupies an important place. The definition of recovery within the meaning of the Act of 27 April 2001 on waste is very broad and covers all activities at the waste product that does not endanger the health and life of humans or the environment, and which rely on the use of waste in whole or in part, and also aim at recovering materials, substance or the energy from waste (Janczewski, 2012, p.60).

Recovery management products are the availability of all resources and show prospects for re-use of products (Jasiński, 2014, p.11).

The basis of recovery management products, is the precise preparation of the analysis. It is about taking initial actions to improve product performance. Monitoring the recovery action is aimed at improving the outcome and efficiency of tasks. It should be noted that these operations are planned. Management has to start by identifying the optimal pattern of recovery action program.

The range of planning and controlling recovery depends primarily on the situation of the organization, technical and organizational level. It should be noted that recovery planning is a matter of accurately determine any actions, the exact schedule wages and demand for resources.

The definition of objectives and planning is essential to managing the recovery process products. This has an important connection, among others, on the grounds that the comparison "the facts of the specific purpose of the plan allows, in case of discrepancy between them, to decide what type of corrective measures that reduce the facts to the planned" (Pająk, 2006, p. 64). Existence of this plan allows recovery control. The most stable are strategic objectives, which are formulated in a general and ambient changes do not have a significant impact. While defining the strategy of the company, it is advisable to follow these rules (Pająk, 2006, p. 68):

- unity market position – functioning on different markets;
- unity production – the manufacture of products of different size production;
- unity of complex products – simple products should not be produced in companies intended for the production of complex.

Taking into account the management of the recovery, particularly important are:

- tactical plans, which concern:
- material resource planning,
- manufacturing resource planning,
- create a master production plan;
- and operating plans, which are typically short-term plans – schedules specifying the use of workstations in a particular period.

The diagram below shows the types of plans drawn up in the company.

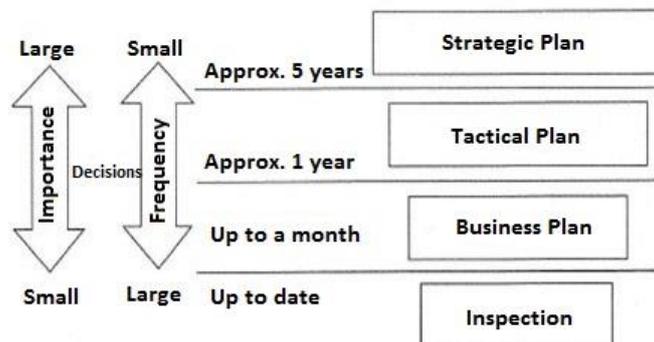


Fig. 1 The types of plans drawn up in the company

Drawing up operational plans for managing recovery, requires the use of detailed procedures. The implementation of each plan requires specific measures for its implementation. The budget represents the financial aspect of the developed plan (Pająk, 2006, p.96). This is a summary of anticipated expenditure related to the implementation of the plan and determine how to cover them (Milewska, 2000, p.105).

2.2. PRM (Product Recovery Management)

Management as the process of recovery is largely due to the type of production specified in the production program. Production program reflects the number of devices intended to produce a certain time. The following types of production are (Milewska, 2000, p. 145):

- unit – is in a small number of products
- small-lot – a larger number of products manufactured than in the unit type;
- merge – repetition period of the series is determined by the needs of the production;
- mass series – which is similar to merge, however, relates to ten times the number of devices;
- mass – has the lowest production cost.

The success of the production depends on the proper management of processes. The organization must effectively determine the direction of activity. Every decision is dictated by the environment, which is an integral part of decision making in management.

The production system reflects the orderly arrangement that serves manufacture a product or service to meet the needs of consumers (Milewska, 2000, p.145). Organized arrangement shows connected parts, which include: material, energy and information. The production system is closely connected with the production process. Production processes (material) – these are the processes of transformation, which consists of transforming ambient influences on the system. This is an orderly sequence of actions, as a result of which the purchaser receives products and services.

The process of preparing production consists of:

- predicting sales;
- selecting the right product and process technology and determining production capacity;
- meeting capital;
- the location of the activity;
- location production halls;
- the selection and purchase of production factors, in particular, machinery, equipment and raw materials;
- recruiting;
- and finally personnel training.

Manufacturing process allows for processing products and factors of production in their services by means of the following actions: (1) planning; (2) organizing; (3) quantity and quality control; (4) production; (5) products recovery; (6) as well as motivating employees.

Return flows can take place at various stages. Company, which will produce a product may have to deal with:

1. With the return of defective finished products that withdraws itself, or which subject to warranty repairs,
2. Refunds may also apply to parts and components manufactured in another stages of movement – if the company receives from the supplier defective component before returns, it will produce its own product (these two situations are aspects of the so-called reverse logistics),
3. With the flow of return on certain elements of the product that have completed their task on the market, but the company may re-use them for the production,
4. With flows of returnable whole products, but which has already been used customers and now have a subject, eg. recycling.

Some companies are painfully experienced problems with removal from the market of their products, which, for various reasons, such as the impairment of elements or contamination of the product with toxic substances had to quickly disappear from the market. Mattel withdrew 19 million Barbie dolls, as their manufacturer in China applied paint containing lead. The company Sony in 2006 listed 10 million batteries in laptops from Dell, because they were defective. The two companies have integrated reverse logistics systems in the supply chain and they wanted to environmentally friendly corporate image (Dibenedetto, 2007).

Recycling of products is to recover and re-use of components, parts, and supplies after cleaning them and verification of wear or possible regeneration and this is the most reasonable type of recycling. (Janczewski, 2012, p.61)

As mentioned above, many companies already have to think about recycling at the design stage of products. Using such approaches as design for recycling (Design for Recycling-DFR) that is designing for the environment (Design for Environment-DFE). The product is designed so that after use they can be used the component normally considered as waste, again for manufacturing new products (Geyer, 2005, pp. 315-328).

3. CONCLUSION

Modern recovery management is not limited only to have new technologies and devices. Really important is ecological awareness and rational managing materials and sections-accordingly with sustainable development rule, counteraction with pollutions and waste management. The issue of sustainable development is one of

the most important challenge for enterprises. In this conception really important is management of recovery of used products.

REFERENCES

- Bertrand K., (2011), Government Boosts Market for Recycled Products, *Business Marketing*
- Dibenedetto B., (2007), Reverse Logistics: Be prepared, *The Journal of Commerce*
- Geyer H., Seyfarth A., Blickhan R., (2005) Spring-mass running: simple approximate solution and application to gait stability. *J Theor Biol* 232: 315–328
- Huber R.P., (2010), Mercedes Manufaauring Strategy Is to Keep the Market Niche Full
- Janczewski J., (2012), Zarządzanie procesem odzyskiwania produktów odpadowych w sektorze usług motoryzacyjnych, *Logistyka* 2/2012
- Jasiński Z., (2014), Zarządzanie pracą. Organizowanie, planowanie, motywowanie, kontrola. Wyd. Agencja Placet Warszawa
- Milewska B., (2000), Zarządzanie produkcją, Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin
- Pająk E., (2006), Zarządzanie produkcją, Wyd. PWN, Warszawa

BIOGRAPHICAL NOTES

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