

Chapter 11

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THE TECHNOLOGY AS ISSUES MANAGEMENT

Abstract: In the chapter was identified management technologies that affect the competitiveness of the company contemporary. The object of the research is Glassworks, which specializes in the production of glass containers with high quality. In addition, presents the orientations of development of technology for continuous improvement of the system in the audited company. The article uses the FMEA method, which is to help in the planning, how to change and improve technology in the company, that the products offered are, the most competitive compared to other competitors in the same industry.

Key words: technology management, FMEA method

11.1. Introduction

In the glass industry as well as in other organizations, it is important to manage the technology in line with best, regarded methods and standards. New techniques and technologies are integrally related with the company's place in the market, its business strategy and marketing, position to the competition, and the ability to build goodwill. In terms of decision-making there is a problem, both at the time of election of the new high-tech, as well as the expansion and renovation. It becomes necessary to manage the development of appropriate technologies in the enterprise. This applies to technologies that will be used for the implementation of routine processes in the organization and implementation of projects.

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Modern organization, regardless of its business profile, should focus their attention on the modernization of technology, because it a feature that is the foundation of efficient business, and not just made up for his success on the market, but also is an indicator of its culture. The company must make changes in the organization, management, motivation of employees in the methods and the way to solve problems, and also in the applied technology. Managers must often ask themselves fundamental questions: How to change the consequences of these changes are held as low as possible to the economic, political and social, but it have brought a lot of benefits. Another important question is: what actions should be introduced to manage to get the greatest efficiency and effectiveness of the company. Such a thinking leads to constantly seek other, more effective ways of making changes in management (ŁUNARSKI J. 2008). The reason for introducing innovation (is associated with a change in technology) are signals from the external environment, as shown in Fig. 11.1.

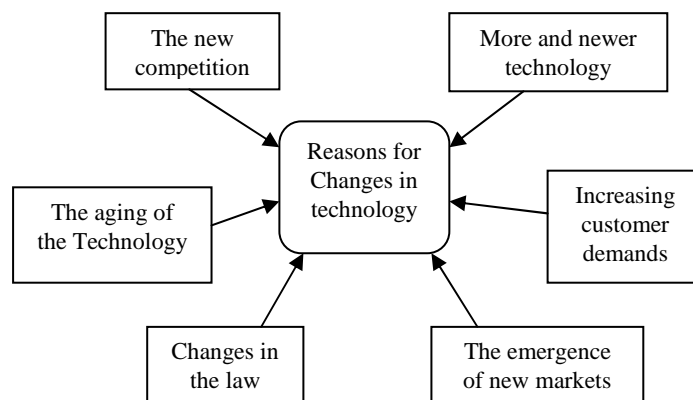


Fig. 11.1. Signals to the change of technology in the enterprise - Glassworks.
 Source: own study (on the basis ŁUNARSKI J. 2008)

11.2. The scope of activities undertaken by the company in the field of technology

Significant achievements in the field of technical development in recent years was carried out by the Company of intensive development work in the field of implementation of new glass products, as well as activities necessary for the smooth functioning of the company. The major projects include (MATERIAŁY WEWNĘTRZNE FIRMY):

- Modernization of line for the preparation of a glass. Steering by use computer PC with visualization. Starting exploitation in 2004.
- Development of batch dosing on sulfate and feldspar. Steering by use computer PC with visualization. Starting exploitation in 2006.
- Elaborate projects, construction of new mechanical and electrical equipment.
- Implementation the mechanical and electrical systems, weighing and dispensing of batch ingredients. Starting exploitation in 2008.
- Design and technological equipment of batch. Commissioning took place in September 2011.
- The control and supervision of the production of sets of glass. Commissioning took place in September 2011.

In the glass industry, some technologies have changed slightly over the decades, and others that have changed significantly in a short time. Just look at that list of technologies used in the manufacture of glass containers. Technology Management at Glassworks is primarily focused on improving the methods of manufacture of glass containers, as well as the modernization of the machinery and equipment necessary for the manufacturing process. The direction of change in the company is determined mainly by the customer or is determined by the top management.

The development plans of the Company in the previous year, i.e. in 2012, is primarily to increase the storage area by the construction

of new storages and the continuing development of capacity at the Faculty of decoration. At the same time work will be conducted on the modernization of technical equipment in order to maintain the production capacity of automatic glass at a high level. – Glassworks works in accordance with the concept of TQM, (INGALDI M., SELEJDAK J., GAJDA P. 2013) which is why its actions are directed at:

- change technology with high energy consumption and material consumption of the technology more frugal,
- change technology as a result of which arises a significant amount of waste for the technology without waste or with a much smaller amount of waste,
- apply to the production of packaging, material that is subject to re-use for production and related with them of the technologies for the production of products.

11.3. The technology management in glassworks in the aspect of quality management - FMEA

Gaining knowledge about the process and preparation obtained from the results of this fact is very useful in industrial practice. Therefore, this purpose should be to use different methods and techniques that will facilitate this task and show the way forward to reduce these problems and the effects of their formation during the manufacturing process. Therefore, should be used of FMEA method (Failure Mode and Effects Analysis) to assess non bottle. Various failures and analyze their effects (FMEA) is a step-by-step actions to identify any deficiencies in the manufacturing process, design, installation, service or product. The use of FMEA, the analysis of the causes and consequences of non-compliance can be identified well in advance (Borkowski S. 2012, Corejowa T. 2004, Szkoda J. 2004). Recognize their causes and consequences that flow from them, and to assess the importance of the process.

Using these three ratios, calculation of the risk level. Risk is within the limit 1-1000, and the aforementioned ratios in the range of 1-10. In addition, this method shows the possible corrective measures. Through an examination of each of the existing stage of the process, it is necessary to identify all possible problems arise (borkowski s. 2012a). FMEA is used during design to prevent failures. Later it's used for control, before and during ongoing operation of the process.

To determine the degree of risk will be subject to:

probability of occurrence (SEV),

important to the customer (OCC),

difficult to detect (DET),

Risk Priority Number (RPN).

In Table 11.1 presents an analysis of FMEA method for glass bottle.

Table 11.1. FMEA for non-compliance of the bottle

No	Potential failure	Potential cause of failure	Potential effects of failure	Rating			RPN	Corrective measures
				SEV	OCC	DET		
1	The large hole head	A short time suction, insufficient vacuum	The difficulty with the function of closing, a leak of the bottle	6	7	10	60	suction control and settings
2	Sharp spines in the head	The displacement of the neck ring	Spike can penetrate into the bottle during filling substance	5	2	8	80	frequent checking of forms
3	Wrinkles on the edge of the head	Dirty forms	Small tightness to content	3	3	4	36	introduction of additional control
4	The small diameter of the thread	Inappropriate vacuum suction for a	Have not guaranteed the function	4	4	8	128	control devices and control

		long time	closure. Cap turns on the establishment and leaking. The content quickly spoil					suction time
5	Thick seam in the head	High suction slot in a ring, adhered to the glass suction holes	It is not guaranteed closing function. The bottle is leaking and damaging the cap	7	2	10	140	improve mold design
6	Attrition is collected Heart (Press-Blas)	Improper maintenance	Damage to the inside of the cap	4	1	9	36	supervision of employees
7	Cracks on the neck	Cool blow molds	During use, the article may be completely break	3	5	9	135	Improvement of technological process
8	Scratches body	Scratched forms	Possibility of crack, a small strength of the bottle. Problems during the decorating for example method dulling by acid	3	8	10	30	control devices
9	Contaminated interior	Dirty forms	After contact with the contents of dirt could cause them corruption	2	6	7	84	control machinery and equipment

10	Twisted bottom	The high temperature drops	The product must be subjected to crash	3	1	8	24	striving to improve production methods
11	Monkey swing	Poor lubrication pre-forms and polishing of internal	When filling or consuming thread may break, which could cause a risk to the consumer	4	4	10	160	streamlining technological process
12	Wrong engraved inscription on the bottle.	Small indentations for the text in the form of appropriate	Difficulties in reading, little aesthetic appeal	4	3	9	108	control devices for maintaining the proper condition of equipment

Source: own study

From Table 1, which shows the determination of the level of risk of cracks in the bottle, created graphic image acquired results (Fig.11.2).

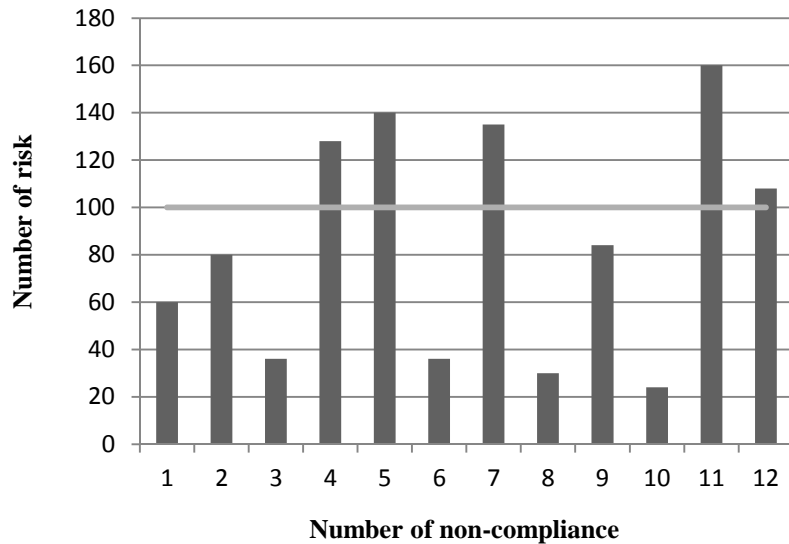


Fig. 11.2. The graphical presentation of the results obtained by the FMEA method.

Source: own study

The data presented in Table 1 and Figure 2 clearly shows that the probability of detecting defects in all the bottles is very large. The biggest risk level has a monkey swing, or a combination of glass thread in the body and is LPR = 160. An important factor is the thick seam in the head (LPR = 140) and at the same level there is a crack in the neck (LPR = 135) (GAJDA P. 2013). These factors can be reduced or eliminated through greater supervision over the production process, its modernization and by increasing the visual inspection of the product. Conducting systematic the method FMEA enables continuous improvement of quality control because it shows what you should mainly pay attention (BORKOWSKI S. 2012b).

Application of the method FMEA also indicates the direction of change of technology, which may be related directly to the change of

the product, as well as a change in the process, the result of which is innovative product. Technological change in the Glass Works may include such functions such as:

- performance and improve the process - change of technology relates to a product by the customer's needs and taking into account the characteristics of competitive,
- organization of a new process - in this case, to reorganize the existing process, which include write or change the manual process,
- improve the whole process as a system - is the most important range of technology changes, applies to all processes carried out at the department, and changes should be part of improving.

11.4. Summary

Based on the established facts it can be concluded that glassware industry there is often outdated technology of some manufacturers. Manufacturers occupy worse position on the market and their products are still very competitive compared to its competitors from other countries. The use of modern technology and dispose of them form the basis of modern manufacturing processes that allow meeting the needs of society. This applies especially to supply products and articles of daily use, as well as the means of production, transport, control equipment and other processes carried out in enterprises. It is also important that the management system technologies have a similar structure to the quality management system compliant the terms of ISO 9001.

To help your company grow and follow the constantly emerging trends in the market, you should maximize the use of technology systems and manage them in relatively the best way, and to maximize the use of their equipment in order to improve performance and efficiency. In this constantly evolving industry know the importance of staying on top of trends and be one step ahead.

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