

The Development of Production is Very Important in the Fabrication of Good Product

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Abstract- The demand for distinctive products and products with added value constantly growing. Determining the factors that influence the attitudes and preferences of consumers is very important for the preparation of such products for the market.

Quality is now an essential part of any organization that wants to survive in the market and be competitive. Given that today the market is increasing the number of bidders, the level of quality is something that makes them better than others and able to fight the increasingly demanding international market of goods and / or services.

The quality of the products and / or services to measure customer satisfaction, and for its achievement must continually invest in quality and find new and better ways to end user satisfaction because his demands and constantly changing. The starting point for establishing worry about the user's needs and desires is the introduction of the Quality Management System, and in the implementation of QMS and the most common way is teamwork. The teams are the ones who are now agents of change and teamwork is the most widespread form of performing complex tasks whose achievement they need any knowledge from different professional fields, any specialized knowledge in the same or similar areas.

Keywords- manufacturing, product development, planning, design, testing, quality, distribution, teamwork, marketing

I. INTRODUCTION

The development of products is one of the most important processes in every enterprise. The product is the basis of survival of the company, ie. exchange of products the company provides the necessary means for survival. The goal of any company is to develop a product that will best meet the needs of customers and be better than the competition. During development there are numerous risks. Many products fail to pass the stage of the launch. Some of the risks are: top management can not influence that is a bad idea turns into a product, the product is not well designed, the market could not absorb the product, the competition has developed a product better than the parent, and many others.

The role of Marketing in the development process is to reduce the uncertainty of success of new products by customers. Marketing is initially a marginal role in the final stages of development, but today covers the entire product development process and occupies one of the key places!

Manufacturers appear with the new complex technologies and materials for increasing production capabilities.

The need for new materials-products increased sharply with improvements in technology and the globalization of markets. Companies are struggling to maintain their competitive position in the market, improving manufacturing quality and performance. Customers are offered a better product at a lower price. Shelf life is growing significantly and has increasing demands for reducing the duration of production in one cycle. It is said that the company that first introduced a new product on the market have more than a 50% chance to make a profit.

Understanding the process of development of production is very important in the fabrication of a good product. The largest automotive, aerospace and computer companies have a systematic approach to the development of a new product-model or its individual parts. Manufacturing is one of the elements of production and development process. This article explains all the important elements of the production and development process.

II. PRODUCTION PROCESS DEVELOPMENT

Product development is a process of transferring consumer needs in production planning and production. The wider aspect of product development involves managing multiple influences between all stages of the production cycle, including planning, manufacturing, distribution, maintenance, and write-off or recycling. The development process of production is determined to find the members of the work team and a team of delivery, subject to the requirements of planning, developing and manufacturing products. It is a systematic way for a successful product launch of the initial initiatives and marketing. Production development consists of a selection of materials, production planning and selecting the right technique, and the conclusion of the prototype, testing the correctness and effectiveness of the presentation of products on the market. In a typical production scenario sale or marketing department, you should become familiar with the needs of the market for the product. The study and further transmission of the need for the product is transferred to the production and development team. They gather information about the product from the marketing team, or in direct contact with the consumer. Depending on which product is required, the appropriate materials are selected for the defense. Engineers have many choices to find the right material and to increase the quality of material. Different manufacturing processes require different starting raw

materials. The product was then planned taking into account the elements and at the manufacture. Once the planned materials and production process selected, prototype parts can be made using the selected production process. Parts of the prototype is then tested and verified to meet the established usability and consumer needs.

Achieving the goal of developing productive activities should reduce the cost of production cycle and delivery time, and increase product quality, to increase customer satisfaction and to increase the adaptability of products to consumer tastes. Today, the main goal is to shorten production time. Shortening the time of production is a process that consists of a variety of specific groups such as: planning, production, marketing, procurement, design, and sometimes the trust of buyers. This strategy drastically reduces production time.

2.1. Causes of product development

Development of production activities are responsible for market expansion and development company. These are the main reasons for launching new products.

1. to find new business opportunities and markets;
2. to add features and benefits bigger and better than the competition to the market increased;
3. to retain old customers and to continue improving existing products;
4. in diameter. that is to attract more customers, it is necessary to add new features;

It has so many features that could be added to the product, but many of them can not be installed because each of them cost. Certainly, proclivities customers are different and they are not willing to pay for each newspaper. Consequently, every manufacturer needs to produce a mixture of different supplements for different groups of consumers.

A list of selected customers,

share the list into three categories:

- 1) must have,
- 2) it is important to have,
- 3) it would be good to have;

Rate each of these characteristics on a scale of 1 to 10 summarizing the results.

These analyzes would help to produce a compound feature that would be best for different groups of consumers.

2.2. The importance of the development of production

In today's global consumer market is very important to launch a high quality product with low power consumption and fast turnover. Basically, the company that first enters the market with new high quality products, won the largest percentage of the market and makes the most profit. In order to succeed, companies must constantly think about the needs of production and equipping during product planning, to be able to reduce production costs and increase product quality. Employing the most advanced experts during production, the main design problems can be solved in the early stages of modeling. Project cost that changes at a later stage, is closely related to the previous phase. For example, the company decided to go with the first option A and starts

making prototypes and test them. Once determined, at this stage, that the project will be better than B Project A, and all attempts to subordinate the project B, then loses all costs and time spent on the project A. If the company decides to change the project when the product has already been made and arrived on the market, then there are additional costs for the change project. Withdrawal could performances due to incorrect design or due to an error in the product. There are plenty of available explanations whose usefulness in solving problems can be explored when planning products. For example, in a study of seven program areas 35.2% of the components have failed due to the project or wrong proposal. During a period of 11 months in the chemical manufacturing 42% of the invested dollars were focused on research and development. For the mechanical production of average quality, it was emphasized that the errors rules during the manufacturing process, which caused about 40% of scrap.

2.3. Joint planning

Joint planning involves the simultaneous use of different production areas such as planning, production, marketing, packaging, safety, etc. Area construction has become popular because it has a corresponding effect on reducing the production cycle time and costs. The usual way of making products includes several activities of different groups such as design, production, packaging, servicing and maintenance, safety and marketing, as shown in Figure 1. In our approach, a group for product design creates a product without contact with the production or other groups. Many times, part of which was designed by the project team, it is not possible to produce or not productive. For example, the project group may recommend to 0.002-inch outside diameter tolerances for intermediate goods, and then passing on a product group. The team handling the project review and reject it, because it can not be produced. The project team is working on re-shaping and says some changes. As a project engineer may recommend sharp angles, as a smaller thickness, high visual quality and other features that could not be produced. Therefore it is very important to consult with an engineer in the early stages of production, in order to avoid re-creation of the delay. Similarly, the project needs to be discussed in class packaging, to determine the size of the product and its ability packaging. This is important for automated industry.

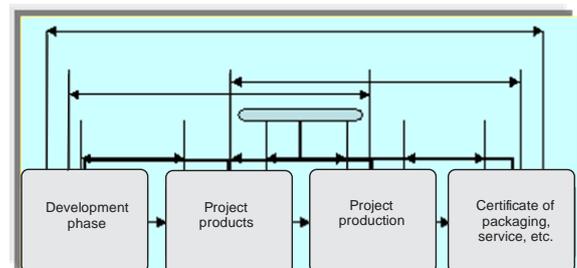


Figure 1. A gradual approach to making products

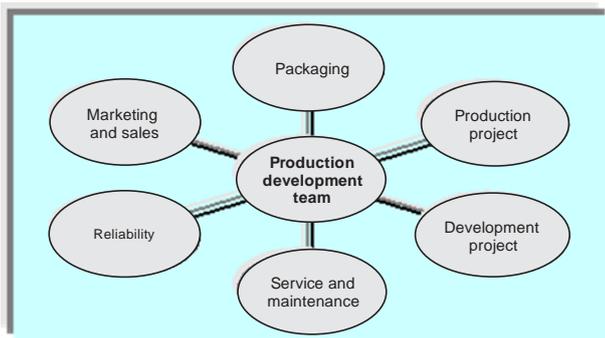


Figure 2. Schematic diagram of joint development

There is a designated area in the design of a car in which thousands of parts assembled together in a common unit. This area is increasing day by day because consumers are demanding more enhanced features and specific car with low fuel consumption. Service Engineer must pay attention to the design, to ensure that the various parts readily available for any repairs. All these needs have to force designers to change the appearance several times, and sometimes to start the entire design process from the beginning.

The application of modern market is to present the development of products in simultaneous technical environment as shown in Figure 2. There is a great need for a close relationship between the production engineers and project engineers, because the decisions in production directly related to product design. It takes constant consultations between manufacturers, system builders, packaging, service, distribution and write to the stage of designing the basic reduce production costs, delivery time and improve quality. It is therefore necessary that the various departments work together in order to avoid change in projects in a later manufacturing process. Is assumed to be ten times higher cost, the introduction of changes in the production phase with respect to changes in the early design phase. Changes in the production phase of the project may be related to the change of tools, materials, equipment, and manpower planning. That is why many are pushing production changes at an earlier stage by using common techniques.

There are many ways to make a product could be designed to meet the requirements of functionality and demand. Early in the design decision has an obvious effect on the final cost. For example, the designer can choose the glue, clips, clamps, mechanical closure or make patterns connecting two components. Each process has required different production planning, equipment and production costs. Depending on the production phase, allowances and other needs officially deciding on a real surgery. Clearly, the ability to repair the project's quality directly affects all production costs. The project for the production of and project assembly strategically could be used to improve the quality of the project. Therefore, it is a good idea to invest more time and effort in the early planning stage, to obtain a project that is cost-effective (or exceed) the expectations of many different

disciplines. This will result in little or no change during production.

2.4. The production cycle of

Each product depending on its value and necessity has its lifespan. On the whole, takes the place of production beginning in the design phase of the product, where the market needs and requirements are transformed into three-dimensional shapes and sizes. In most cases the idea for a new product comes from the customer. For example, when a customer complains 3M Corporation, due to dust in their sanding paper, 3M comes to the idea of a wet sanding paper, in which the dust problem does not exist. After its creation in the production company, the product represents the market to a lesser extent, called a sample for testing. During this stage of product sales remained low until the product enters the family selected. This stage is critical influence on the administration to respond to consumer complaints and feedback (feedback) to improve its performance and opportunities for greater market acceptance. After the presentation phase, the product enters the development phase where product sales to grow through word of mouth and advertising. After the growth phase of the product enters the mature phase where annual sales remained almost the same or increases in proportion to economic growth. During this phase, production experience competing, because the presentation of other similar products. At this stage continues to improve cost reduction and improved product quality. Additional features of the added product and sometimes the product is moved to another group where it comes into contact with different groups of consumers. After a while product sales declines due to a better representation of the product on the market that complies with similar needs with better technology. For example, composite golf clubs, fishing rods and composite boats are replaced with metal or wood replicas. During the descending phase, management may try to revive the modernization of the product or the introduction of new technology.

The launch of a new product on the market costs a certain amount of time and money, along with the market vacillation; These are the biggest obstacles newspaper production. The high cost of investment in research, development, advertising and selection increased the initial price of the product. As required by production volume and product price growth declines. The higher price of the investment is a major obstacle for small companies to compete with large companies. Operating profit and association conquering the world overcoming this initial obstacle to successful competition in the market.

2.5. Stages of Product Development

Complete product development process is divided into several stages (or phases), for successfully designing and manufacturing products. Each stage has its own goals and concerted actions to achieve these goals. Each stage is divided into several activities and tasks. Different industries practicing different types of development processes of production. Some practitioners phase, four-phase product development process some practice, and practice some

seven phase. The goal of each is to reduce possible errors, reduction of price of the product, reducing time and improving product quality.

2.6. The principle of the feasibility phase

In this phase, the market demands a product with a unified functional and quality requirements that are equal. Ideas are then checked by a team of experts from different departments, such as construction, manufacturing, materials, marketing, sales, finance and sometimes customers. Members of the team are not only experts in their fields, but are also knowledgeable in the field of other team members. This helps to avoid problems in communication and educational barriers. The group of participants changing desires of customers in the three-dimensional shape and size of the product without too much attention to the specific forms, production or technical details. The purpose of this phase is to make a preliminary design and production sketch and then evaluates the technical possibility of planning and manufacturing. An important element of this feasibility study is to assess the expected costs for companies and for customers. At this level, the list of competing products being compared with that product is determined. Competitive rates are compared with the expected production costs, and the need for a specific product being tested. Once analyzed the needs of the market, the previous project of production and development, project costs, and restitution invensticija was again reviewed and a decision yes / no yields defense project.

2.7. Detailed design phase

This phase uses information compiled into a phase of detailed product to leave the notion of multiple products. The team for product development is established, composed of experts in project designing, manufacturing, materials, testing, packaging, reliability, maintenance, marketing, and ways to purchase. This team is led by a top expert in the design of the product. This team prepares laid the basis for product planning. Different functions, performance, maintainability, packing, repair and other requirements are appointed. Several periods of intellectual conflicts were conducted among members of the team for product design. The purpose of intellectual conflict is to create as many ideas about the elements of the project, a joint project of installation methods, materials selection and selection processes. During intellectual bickering criticism of any idea is not allowed. A great deal of time and efforts are devoted to this stage, to offer up the best solutions for product design. Tools such as the final element analysis, and analysis of the failed model of efficiency are used to perform the best ideas.

From one project has many useful options for the product, various design options are compared. Tools such as analysis software (Butroid and Djuharst, corporation), etc. are used to reduce or able to select the most promising projects. Complete sketch product is made for the best project and product specification and material is recorded. This information is then used to produce prototype parts. It is

possible that it is necessary to modify the selected project or perhaps discarded. In this case, the new project is selected from the narrow circle of solutions or the above process is repeated.

2.8. Prototype development and testing phase

Since the product design is complete, it is important to test the project and its functionality, performance and other requirements. Product specifications and materials made in the previous stage are used to produce prototype parts. Development of prototype parts involves extensive investment in equipment. To avoid costly equipment and other investments, rapid prototyping is used in some cases to ensure that the project meets the needs of installation and assembly. Fast construction of prototypes, such as stereolithography, is one of the expensive ways of making parts for visual inspection. Stereolithography Apparatus agree dimensional files (profile model) data in parallel profile and then construct the physical part causing the layers of plastic or wax layer by coating them from top to bottom until it completes the desired part. Depending on the size of the labor prototype can be built in a few hours. Provide part shows quickly assembled model assumptions for the review. It can be used by marketing personnel in order to show or staff for the purchase of an increase in the accuracy of the offer. With the help of rapid prototype system deficiencies in the project can be identified early in the product development cycle, before costly investments in tools and fabrication.

Following the production of prototype parts, doing the tests assembling components. Before being tested and installed all the components, you should first check individual elements, operating mode and other requirements. By doing this installation costs are confirmed and the main cause of failure can be predicted. Once assembled parts inspection, later it is sometimes difficult to find out which component is causing the failure. Checks component parts removed the confusion. As part of meeting the requirements of installation, then for their installation check different compounds and interfaces. Once this done, editing the whole product is created and tested. The purpose of testing the prototype to determine the design capabilities of the product. This stage in the design contains three parts: the functionality, flexibility and design. Copies made at this stage may not be complete but should represent the actual product. In fact, parts of the prototype should be made using the equipment and production process selected for the production of the entire product, but sometimes this is not possible. For example, prototype parts made in or molding pressure were approved because further tooling and equipment costs. Testing of the prototype provide good indicators of technology and project feasibility, and is important in determining the justification of the project process before engaging funds for the next period. Testing of the prototype also provides guidelines and directions for future attempts. In some cases, parts of the prototype display and demonstrate to potential customers that would be used their opinion about the project. To accelerate marketing efforts and facilitates consumer interest in the product.

2.9. Preparatory or pilot production

Having passed the stage of product prototypes and testing tasks identified are listed. Attempts at this stage focus on specific simplified manufacturing processes; reducing the cost of raw materials and production; identification of devices, tools and necessary supplies; standardization of products and processes for the possibility of internal modification of existing production lines; development of internal resources and manufacturing capabilities; decision declared against the unsuccessful production etc. At this stage, the entire scientific team of manufacturing engineers are representative of water. This helps in proving manufacturing productivity by highly qualified team members. By keeping manufacturing engineers as a team leader, fabricated knowledge of machinery, tools, equipment, material handling, during processing, development costs, production costs are reduced. Project engineer checks the report to make sure that the product is in a unique manufacturing wrapper.

The next step is to demonstrate the possibilities of the production process for assessing production requirements, tolerances and other requirements of the production of a small group of products. It is also called the pilot project. Testing the quality and dimensions are performed to ensure that the product made according to the specifications and that the expected quality. So it made the product tested under the conditions of use in research laboratories or testing ground, or under realistic conditions. Based on the experience of manufacturing quality measurement, and test results, project or approved or returned for revision.

2.10. The overall scale of production and distribution

Following the successful presentation of pilot project for the production, the product is ready for sale and distribution. At this stage, the main focus is on solutions for packaging, distribution methods, procedures for quality assurance, modes of access orders, storage and marketing strategy. This is the phase when the product is the official market. At this stage of the development team of production conveys knowledge about the product and its value in other departments of the company, such as sales, marketing, accounting, quality assurance, and so on.

2.11. Continuous improvement

Once the product on the market, the company started to get feedback from customers, vendors, marketing, and other groups. The employees at the factory can not complain in relation to health and safety characteristics of the processing or may propose better solutions for the realization of the various production processes. Based on the experience gained in marketing, sales, production and use of products, changes in the project are working to improve product quality and performance, and to eliminate faulty parts that are identified using the product. These design changes can go through one or more of the early development phase of production. The company constantly strives to improve the

quality and reduce the cost of the product, to make it more suitable for the competition.

During the development of the production process, the different presentations of the project are set to ensure that the goals and directions RPP meet.

2.12. Testing project

Testing project is an important element in the development of the manufacturing process. Basically, there are four to six checks of the project such as checking the preparatory project and check the temporary project verifying the critical Project and check the final project in the development and production cycle. These checks the project are contained in the various stages in the development and production cycle to ensure that the operation is going in the right direction. Checking the project is associated with the head of TPR and accompanied by the directors of the different departments (for example, production, usability, marketing, procurement and raw materials) who are experts in the production lines of the company and the business and are not directly associated with the development of the project. These professionals are highly experienced professionals and were informed about the aims of the project. Experts may be outside the company, such as a buyer or a university professor. The head of the TPR and presents the results of the development process by executing the task on time and board members evaluate the results and determine the future direction of the project. The purpose of the control is to come up with new ideas about the project, correcting potential problems with the project, the protection of selected projects and providing guidelines for future activities to meet project objectives. Testing ensures that the product will operate successfully during use. This confirms the commitment of professionals to ask critical questions about the product and development. Successful verification of the project not only provides a critical building product and process design, but also provides solutions for a variety of design problems and challenges.

Project control is a common activity usually completed in a few hours. The leader of the schedule the date of the meeting and sends the program of work of the meeting. Minutes of the meeting shall be taken and circulated among board members and members of the. Courses of action are recorded and followed during the meeting.

2.13. Incorrect forms and effects analysis (IFEA)

IFEA be published during the TPR to determine the potential erroneous forms that the product may acquire during production and to assess the impact and consequences of the wrong shape to the functions and performance of the overall system. It provides a systematic method of analyzing potential causes and effects of failures before the project is finalized. The purpose of this analysis is to redesign the product to the maximum reliability. IFEA detects and indicates the causes and mechanisms of the wrong shape. For every wrong shape, the effect on the whole system, its severity, and its probability of occurrence, are examined. POEA purpose is to improve the quality, reliability, safety and durability. A winning combination of

this is to reduce the price of the production cycle. IFEA can be used during the product design as well as during production project. IFEA can be fitted with during the development of the manufacturing process.

IFEA helps the development of the manufacturing process following ways:

- establishes a list of potential false forms of production, follows the list and develop a project plan and production in order to avoid the wrong shape. Therefore, product quality is improved significantly,
- ranks the wrong shape to their effects on the entire system, makes a list of priorities and tests for the improvement of design in relation to a series of incorrect forms,
- predicts future features for analyzing the wrong parts and to establish guidelines for major changes in the project,
- is used as a tool in selecting the production and design of manufacturing capabilities. During the presentation IFEA, can to ask the following questions:

1. What are the functions of the product or assembly?
2. How can erection, subcontracted and the individual elements to disappoint?
3. What opportunities these failures and their sharpness?
4. What are the reasons for failure?
5. What are the effects of each individual erroneous forms on the function and performance of the product?
6. How can these failures to become a priority?
7. How will the error be discovered?
8. As errors can be avoided?
9. What are the possibilities of the project to avoid a mistake?
10. If an error is generated, then that corrections can be taken to avoid its sharpness.

Error is a loss of function or ability to fulfill the prescribed task of previously occupied position. Examples of errors include that product becomes noisy or unable to perform the task, or does not meet the desired performance characteristics required. Incorrect forms are those that lead to the occurrence of errors. Typical erroneous forms in production include breaking work, looseness, tightness, bending, running, common errors, and so on. For every wrong shape has several reasons for the failure. It is very important to determine the real cause of the failure. Once the cause is known, the solution becomes obvious in many cases. Knowing the causes of correction and provides design solutions. To show POEA project is divided into sets. Each set is divided into subsets, then subsets are divided into components. The functions of each set, subassemblies, components, and in particular the mutual relations are established. Potential wrong shape caused by the operation and conditions of use will be assessed for each component and its impact on each higher level or the entire system is analyzed. Technical Commission gives the wrong shape possible for TPR regarding their design and TPR undertake corrections or preventive measures to minimize the effects of errors or completely eliminate the error. Technical Commission noted the possibility of certain types of manufacturing defects from the previous experiences of the company.

III. CONCLUSION

Quality is today an integral part of any organization that wants to survive in the market and be competitive. Given that today's market is the increasing number of producers, the level of quality is the only thing that makes them better than others, and more able to fight in the market. Companies invest in quality, they want to achieve the highest possible quality, in order to survive and allow the end consumer a quality product and service that meet all their expectations, because the ultimate goal of the company satisfying end consumers. Acceptance of the Quality Management System that can be implemented according to ISO standards should be a strategic decision of the company.

The propensity work in teams is a requirement that is now inevitable in the world of work, so it is logical that with the implementation of the Quality Management System is one of the ways to introduce company. Furthermore, it is essential to doing some work to fully clarify its purpose and that is our ultimate goal. The team of each team member has a different task than others. If each member of the team does not make their job, the task team as a whole can not be executed.

The success of the team depends on the success of eachits members. Good teamwork required to help each other, to respect and accept different opinions, to listen and pay attention to other team members, avoid personal attacks and insults that everyone participates and do the best you can to pay attention to the task, to discuss the next set goals, to openly express problems and that all team members adhere to the rules set.

In conclusion we can say that the essence of teamwork and creating teams in the integration of knowledge, attitudes and experiences of team members in solving the same problem, and it is important to emphasize that no Not perfect, but a team can be.

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