

07 Product Development

01 Product creation planning

01 Product designing and product concept

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01 How active is your top management towards product development?

Y Explain some cases of your recent successful product development, which were initiated by an order of the top management.

N Why not feeling the necessity for development? In case of no product development, any enterprise may lose the power, being strongly influenced by the principle of "product life cycle".

02 Following the top-down policy, your engineers in charge of product development are challenging the development so eagerly as to make the most of their competence?

Y Where is the target market? And what is the technological competence of your company?

N What is the obstacle to eliminate the restricting factors of development?

03 By identifying the market needs, do you make the concept of the product development clear enough?

Y Listen to their explanation of the organization mechanism how they convert the market needs to the product concept.

N Why not possible to carry it out? Do you know how your competitors are doing?

04 Has the planned concept been concretely imprinted in the new product?

Y Confirm that the concept is reflected and explained clearly in the sales advertisement.

N Advise that it is necessary to form such a development organization as to be able to reflect the concept of the product.

02 Planning of product development

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01 Does the planning of product development include clearly, how much is the price, how many are sold, and how to sell?

Y Explain the outline concretely.

N Explain it is necessary to make the information based on market research materialized in the planning, as much as possible.

02 Have you established cooperative relations with every section so that you can proceed the new product development as scheduled?

Y Let us know the cooperative sections concretely and the number of members participating in the project.

N Advise that it is not possible to succeed without getting the cooperation of the important sections, such as designing, production, purchasing, and quality control.

03 Have you established a system of cooperation with outside organizations which will assist you to cover your technical weak points?

Y For example, do you make the best use of the outside organization such as TLO(=Technology Licensing Organization), and coordinators effectively?

N Remember any outside organizations who are in a position to supplement your ability, in order to promote your own development more effectively.

04 Have you secured enough budget and people necessary to develop a new product?

Y As the development expenses are depreciated after the development, the budget should be established as concretely as possible and should be reviewed periodically at the time of execution.

N For product development, direct material costs, project personnel expenses, and outsourcing expenses are needed. All of them should be depreciated by the sales of new product.

02 Product development

01 Objective of development and information gathering

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01 Are the estimated sales price and the target cost of the new product so definite that you can secure a value added per sales unit?

- Y Check whether after-service costs of the labor, materials and the like are included in the “target cost.”
- N If the direct target cost doesn't stay within the limit of allowance, it should be decreased.

02 Do you decide the design quality and target cost for each main component of the product?

- Y Confirm that cost reduction and quality guarantee are realized at the parts or module where the function can hardly be separated?
- N In comparison with the former product, it is important to point out how the product value is improved.

03 Analyzing claim information and complaints from the customers, do you reflect those facts in your product development?

- Y Make sure how systematically the claim analysis is performed and reflected to the improvement.
- N Advise it is the first step to grasp the market needs by gathering important market complaints and accumulating them.

04 Do you decide the information items and sources of information necessary for development of product so that you can collect information efficiently?

- Y Check how widely they collect market information. Advise to try to gather information globally, if possible.
- N It is necessary to make it a routine to collect the information of market, clients and technology, systematically.

05 When the production is made by order, do you hear the evaluation and the request of the client and make them reflect in the product development?

- Y Listen to the requests from the production side as well as those from the clients.
- N Pay a careful attention to the request and proposal of both the manufacturing and sales sides, because a big market may sometimes be opened by this sort of keen requests.

06 Do you try intentionally to collect the latest information both on the sales market and of the development technology ?

- Y Try to form a future image of products to be developed from both technology and market information, fully utilizing the information technology and the like.
- N It is the basis of existence and development of the enterprise to collect every information periodically.

02 Development of product function

01 Development of product function

01 By clarifying the purpose of use and the function of the whole product, do you insert some unique functions and charming points in the new product?

- Y Confirm that the elements of technology, the technological reliability and the effect of cost improvement are widely built in the product.
- N The functional analysis and the value improvement are the most important subjects of the product development, so it is desirable to introduce them promptly.

02 Do you quantitatively establish the characteristic value of the quality and the condition of usage for each main component of the product?

- Y Don't you find any part with excessive quality or with excessive function?
- N You should enforce the detailed analysis of the market claims immediately.

03 Are you giving weight to the development theme, and controlling the progress after assigning the target cost for each important function?

- Y Counting backward from the last day of production schedule, are you watching the development schedule?
- N Keep in mind that the comparison between the plan and the estimated cost is always indispensable, and both structure design and production design are planned to flow concurrently.

04 Do you pay the keenest attention to the critical path of the development schedule?

- Y Why critical? Check it on the basis of the schedule.
- N In case of important development, it is recommended to form a project team in order to get enough cooperation from other sections.

03 Idea generation and materialization

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01 Do you utilize the method such as brain storming so that you may generate as many ideas and hints as possible?

Y Check whether any cross talks with people from the different fields are made.

N Advise that any frank cross talks with specialists from different fields would generate more ideas and hints.

02 In materializing a plan, do you respect any ideas and hints? Moreover, do you evaluate and judge the performance and characteristic from both sides of quality and cost?

Y Listen to their explanation how they materialize ideas and hints to form structure design and production design.

N Advise that any ideas and hints may dedicate originality to the product, and that the evaluation both from quality and cost must devote credibility to the product.

04 Creation of blueprint and specification manual

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01 Does the test of "prototype" progress as scheduled, and doesn't the delay of this test influence the timing of publishing the drawing?

Y Make sure whether the following process regularly receives necessary information.

N Drawings and information related to critical path should be transmitted to the following process, with priority, and a recovery plan is important in case of delay.

02 Are the design specifications imprinted in the drawings prepared after deep consideration of the processing and assembling ability of the following processes?

Y Confirm that purchase goods quality and suppliers ability are well considered in the design specifications?

N Besides your own production processes, even moulds, jigs, tools, set up time, yield of materials at the suppliers must be taken in account.

03 Are the product concept and planning principle clearly built in and materialized in the design and specification?

Y Check whether any limit sample is prepared even for the visible test of artistic design.

N Advise that a new product should express some appealing points of usage.

04 Do you make full use of CAD(computer-aided design), CAM(computer-aided manufacturing), CAE(computer aided engineering) to speed-up your product development and to increase your efficiency in designing?

Y Is your software a standard and new version, so that your subcontractors may use it?

N Put a stress that promotion of information technology, particularly utilizing good soft wares, is inevitable in order to strengthen the enterprise constitution and to cope with internationalization.

03 Evaluating new product

01 Trial manufacturing and quality evaluation

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01 Do the equipment ability and the worker's skill in processing and assembly lines cope with the product in the trial manufacturing stage?

Y Just ask whether they can find better method of higher productivity?

N Request to start again from the designing stage, as the ability and your production skill were totally neglected.

02 Has the sample been made as scheduled, and has it satisfied with the designed quality characteristic value?

Y Can you assure it within dispersion?

N How about to change your way of thinking, if you really want to assure the quality?

03 Did you find some defects in the drawing and the specification through the trial manufacturing? Can you conduct countermeasures and improvement?

Y Check that the countermeasures are adopted from the improvement plan of the members who are the experts to solve the problems.

N Best policy is to keep the schedule. It is necessary to put a priority to solve multiple defects.

04 Have you been successful in trial manufacturing test, by achieving the trial targets of performance, quality characteristic, and function?

Y Check who declared the “ Goal ” of the trial manufacturing.

N Why not having another meeting with sales people to discuss about quality level required by the market.

05 Is a measure to cope with PL (product liability) issue fully inserted in the product design?

Y Confirm that the specialists on the issue are also involved.

N Give careful consideration of making less possibility of problem occurrence, in case “ no accident ” could not be fully guaranteed.

06 Do you have a management system for the industrial property such as patent and utility model? Does your new product not conflict with any patent of other companies?

Y An intra-office idea proposal should be recommended to encourage as well as an active patent acquisition.

N Emphasize the importance of skill and know-how, making full use of public wisdom.

07 Is an environmental consideration made, when selecting parts and materials?

Y Confirm they consider to economically reduce the environmental load more than ever.

N Study a possibility to recycle the materials which are substantially used, both from ecology and from economy.

02 Evaluating cost and marketability

01 Evaluating cost and marketability

01 Does the total estimated costs of materials, parts , processing, and assembly at mass production satisfy the target cost ?

Y Make sure whether they prepare the future cost improvement schedule, anticipating the market price competition would be more intensified.

N Recommend to re-study the measures of cost reduction, item by item.

02 Are all expenses of manufacturing, factory management, administration and sales within the budget?

Y Confirm a future improvement (for example, the productivity improvement of the indirect sections) is planned to start?

N Advise that, in the case of new product, one method is to fix the value added of the first year be X%, and that of the second year be Y%.

03 Does the value added which is “ selling price minus direct material and labor costs” meet with the target scheduled at the beginning of the development?

Y Identify how they anticipate the value added of this new product at every stage of its “ product life cycle. ”

N Recommend to study every cost reduction by way of improving yield and labor efficiency, and saving expenses, which can be handled by themselves.

04 Are the development expenses, equipment costs, and mould costs so adequate that they can be recovered or depreciated by the expected sales amount of the new product?

Y Especially confirm the life of newly made mould.

N Recommend to start studying how to convert new equipment and mould to some different purposes.

05 Are the samples made at trial manufacturing well accepted by the market users? Or have you received some complaints to modify or to improve?

Y You should appreciate those market reactions.

N Recommend to be as sensitive to the market reactions as possible at the stage of trial sales, so as to catch any complaints as quickly as possible.

06 Have you held a mid-way conference of product development, for the purpose for related departments of development, designing, production (including purchasing, outsourcing, mould, jigs and tools, test, inspection, sales and services) to reach unanimous understanding and to make necessary adjustments?

Y Check every adjustment concerned with the schedule (sales and service kick-off), quality and costs.

N Suggest carrying out the conference at latest when the mass production is starting. (so that any materials requiring long lead time can be arranged well ahead, for example)

04 Production system and sales system

01 Establishing production system

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01 Have you solved problems on function (quality, characteristic, performance) and difficulties on operation (handling, operation, maintenance)?

Y Let them illustrate typical examples they solved.

N Make the unsolved matters clear, so that they may discuss how to solve.

02 Is it possible for your own technology and suppliers' ability to produce the new product?

Y Check that both "ability table" and "QC table" of your all production lines, including suppliers' lines, are prepared.

N Instruct to grasp the present production capacity (efficiency, yield, unit material, machine hour rate, etc.) of each production line.

03 Your internal and external production system on material procurement, component parts, processing, inspection, test, and so on, is well prepared and maintained?

Y Just check every department, including every supplier, has the production manual.

N Establish every in-and-out production system possible to conduct production, some how.

04 Are the inspection tools, testing equipments, etc. well maintained for the purpose of quality assurance?

Y Check the operation manuals are carefully prepared.

N Be careful not to forget to check the quality, even by a substitution characteristics, of the most important items.

02 Establishing sales system

01 Establishing sales system

01 As a result of full cooperation between marketing and production departments, is the sales forecast as scheduled?

Y As a representing characteristic, make sure that the marketing target (region, sex, age, profession, etc.) is clear enough.

N Explain the importance of building up a realistic and feasible marketing policy, through the trial sales to the monitors before sales kick-off.

02 Are the sales materials such as product catalogues, user manuals, guidebooks for optional parts well prepared?

Y Check whether their explanation refers to any consideration on PL.

N Minimum materials for sales promotion should be prepared, by consulting the sales tools of the competitors.

03 Are the after sales service manuals, replacing parts, etc. well prepared?

Y Make sure that their contents refer to consider both the environment problems and industrial waste disposals?

N Minimum preparation of main replacing parts, after-sales service procedures, and claim information routes should be made at the time of the sales kick-off.

04 Do you collect the market information regularly after the beginning of sales?

Y Confirm the market information is collected concretely, and is utilized to improve the present product and moreover to create a new one.

N Even if the information route is limited, be sure to grasp the facts in the market to feedback.