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PRODUCTION PLANNING IN ESTABLISHMENTS OF THE WOOD PROCESSING INDUSTRY\(^1\)/

by

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INTRODUCTION

Planning was conceived by modern man to attain better economic effects - or to put it yet another way: the ever increasing intricacies of life forced him to anticipate things in advance.

Conveyor belts are endlessly turning and carrying forward and changing the forms of great masses of products or materials. At an exactly specified moment in a production process two (or more) products must meet and fuse into a new entity. This new product is in its own turn hurried forward on its designed and planned course, again to meet and fuse with another at another exactly specified moment, and so on. Production must never be left to coincidence if it is not to accumulate time loss and with this, loss (due to excessive production costs) of very competitive markets. Turning up late is as good as not showing up at all.

That is why we plan. In the mind, on paper, on huge boards, graphs and models are drawn up and constructed - with our sights set ever more on the computer. Without planning, production can, in fact, be hardly thought of - because the machines, for which no cutting-knives had been planned, would come to a stop on the very first day; assembly workers could simply sit down, without glue or some other material at hand to shape into a wardrobe for example.

1. Essentials of good planning in Manufacturing Enterprises

Good planning does not begin when a plan is put down or drawn on paper but much earlier, when a product is still in the phase of preparation, or to put it better, when technological documentation is being prepared for the product. A manufacturing enterprise must, however, first of all, have its general channels of communication in order.
1.1 Orderly interpersonal relations; combined manufacturing enterprise (complex or groups - manufacturing enterprise - production unit - direct producer).

It is important that everybody within the enterprise is aware of where the decisions come from; and more important still, that they come from the top. The management must be in complete control of the whole structure, otherwise anarchy will prevail, beneficial to individuals but not to the manufacturing or combined manufacturing enterprise (complex or group) as a whole. To avoid this, the following conditions must be met:

1.2 A perfect preparation of production

This means that the product must be thoroughly defined (the structure finalized to the last detail with exact standards for components and materials, the technology of the process specified with all the necessary standard times). A well defined standard for materials is the basis for the planning of their procurement and of their cost. Standard production times for the product are the basis for all short-term and long-term production plans.

Should the production process not be prepared down to the very last detail, then all wishes for an orderly management of the manufacturing enterprise would be in vain. In this case there is no possibility of managing the process from the top downwards, much less of computerized planning and managing. "Planning" and "management" will be left to the lower structures or even to the direct producer, who are bound to disguise their own mistakes and bad work behind incorrectly prescribed standards, and procedures.

If the standard production times for a product are too generous, available labour time will be insufficiently exploited leading to the product being burdened with excessive production costs and for this reason overpriced and uncompetitive on the market.
1.3 The management must conform to high professional standards, it must have authority and it must have complete insight into the quality and quantity of the structure of the enterprise.

Already at the level of the combined manufacturing enterprise (complex or group), the management must have a clearly formed policy on the distribution of production between the various manufacturing enterprises, on their complementing and assisting each other, instead of each undertaking the same tasks and thus competing with each other. The management must know what line of work each single manufacturing enterprise is most suited for - in the sense that, in the whole of the combine, it is able to perform the specified line of work with best results and lowest costs, being equipped with the most appropriate machinery and professionally ablest personnel and labour force for this line of work. Already at this level the management must decide on the enterprise that is to manufacture office furniture, on the other that is to produce kitchens, living rooms and so on. These decisions usually refer to longer periods or even to the whole existence of the enterprise.

The next level of task distribution is that of the management of the manufacturing enterprise, distributing tasks among the various production units, and finally, the management of the production unit must be very closely acquainted with the skills and capabilities of its workers and with the quality and capacity of its machines and other equipment.

Experience shows, however, that decisions are for the most part not taken at the top but rather somewhere in the middle. Should this middle be the management of the manufacturing enterprise, such a state of affairs can even be considered successful. But should the decisions on task distribution and planning be in the hands of individual production unit managers, then the consequences might suit the single unit but will be harmful to the manufacturing enterprise as a whole. We can picture the "most able" production unit manager "grabbing" for himself the best tasks, and those which another production unit is qualified to carry out even better and at lower costs, this being not in the interest of the whole manufacturing enterprise. Such decisions, in the last resort, greatly affect the general performance of the national economy.
1.4 The production and sales programme must be worked out very exactly in all manufacturing enterprises and units.

We base the programme on market research. In view of the different approaches to planning, the production and sales programme should be treated in three phases:

(a) Standard programme - the so-called iron programme of the manufacturing enterprise, it is always available in shops and it represents the enterprise on the market. Articles from this programme (e.g. chairs, tables, etc.) are manufactured in a process of continuous formation of adequate stocks of components (semi-finished products), which are then, upon demand, assembled and given finishing treatment (as requested by the buyer). It is important to have the components standardized, that is to say to have the end product structured in a way which enables us to assemble the greatest possible number of various finished articles with the smallest possible number of components. The former considers requirements of the market and the latter the desiderata of production.

(b) Special programme or special orders - this is the case of setting out to furnish bigger projects or to manufacture furniture and other equipment for bigger projects, such that demand new products. If the firm can participate in the design of these new products it shall make use of at least some of its standardized components or even finished products.

(c) Production programme for export - this programme can consist of the existing standard programme of a manufacturing enterprise and it need only wait for an order from a foreign buyer, or, on the other hand, the products can be altogether new and have yet to be introduced into production.
For all these programmes, production times must be elaborated and incorporated into the plan. While making the annual plan, of course, very little is still known of what and how much shall eventually actually be sold; so the most that can be done is to determine percentage shares for the standard, the special and the export programmes in the complete production time or time capacity of the production unit.

2. Production Planning

2.1 Approaches to planning:

2.1.1 Forecasting and perspective planning of periods covering several years: a number of methods of long term forecasting are known, which are an important part of planning for they help manage an enterprise in the long run.

2.1.2 Basic planning: This is planning of one-year periods. This plan is based (as already mentioned in chapter 1.4 above) on a precisely elaborated production and sales programme. In advance of the rough outline of production for the following year, at least some knowledge of the results to be achieved must be had, while on the other hand the capabilities (production capacity, prices and market demand) are finite. The most perfect plan will be of no help whatsoever if it is known that the limited production capacity will not enable the firm to fulfil it, and if it knows that the market will not be able to absorb the quantity to be produced. The plan should therefore be well within the objective capabilities of the manufacturing enterprise. Of some importance to every national economy is also the plan of production for export. This plan - if it is, of course, duly fulfilled - also shows capacities for imports of essential materials. It should therefore also be coordinated with the plan for the purchase of imported materials.
2.1.3 Operative planning: planning of shorter periods, for example months or ten-day periods: It must be as exact as possible. On the basis of this plan, completion time points in the production process can be defined, the punctuality of which is a distinguishing mark of every enterprise.

2.2 Planning different kinds of production:

2.2.1 Planning of primary production or the production of semi-products: this is the planning of as yet incompletely defined products which have a wider applicability and in this sense represent lesser sales risk. Continuous production is planned, the plan assuming a high degree of certainty; The range of inputs and outputs is much smaller, and it is likely to be more closely linked to the installed equipment and its capacity than to market "fashions" which tend to be minimal and change only gradually in time.

2.2.2 Planning for the production of finished products: this is planning of completely defined products, based on market demand and market research and also on the concrete orders received, and is outlined in greater detail hereunder.

2.3 Methods and expedients in the planning of production:

This is a wide-ranging theme. Whole books having been written on the matter. The best known are the methods of network analysis. In the course of planning we make use of tables drawn out on paper, we can hang the walls with special boards, with models, or we can buy a computer, in which case we must also have the appropriate programmes.
Conclusion

The importance of planning in today's world cannot be underestimated. It is especially important to point out that good planning rests on a completely determined and thoroughly prepared production process. Only when this is done will the results be satisfactory.