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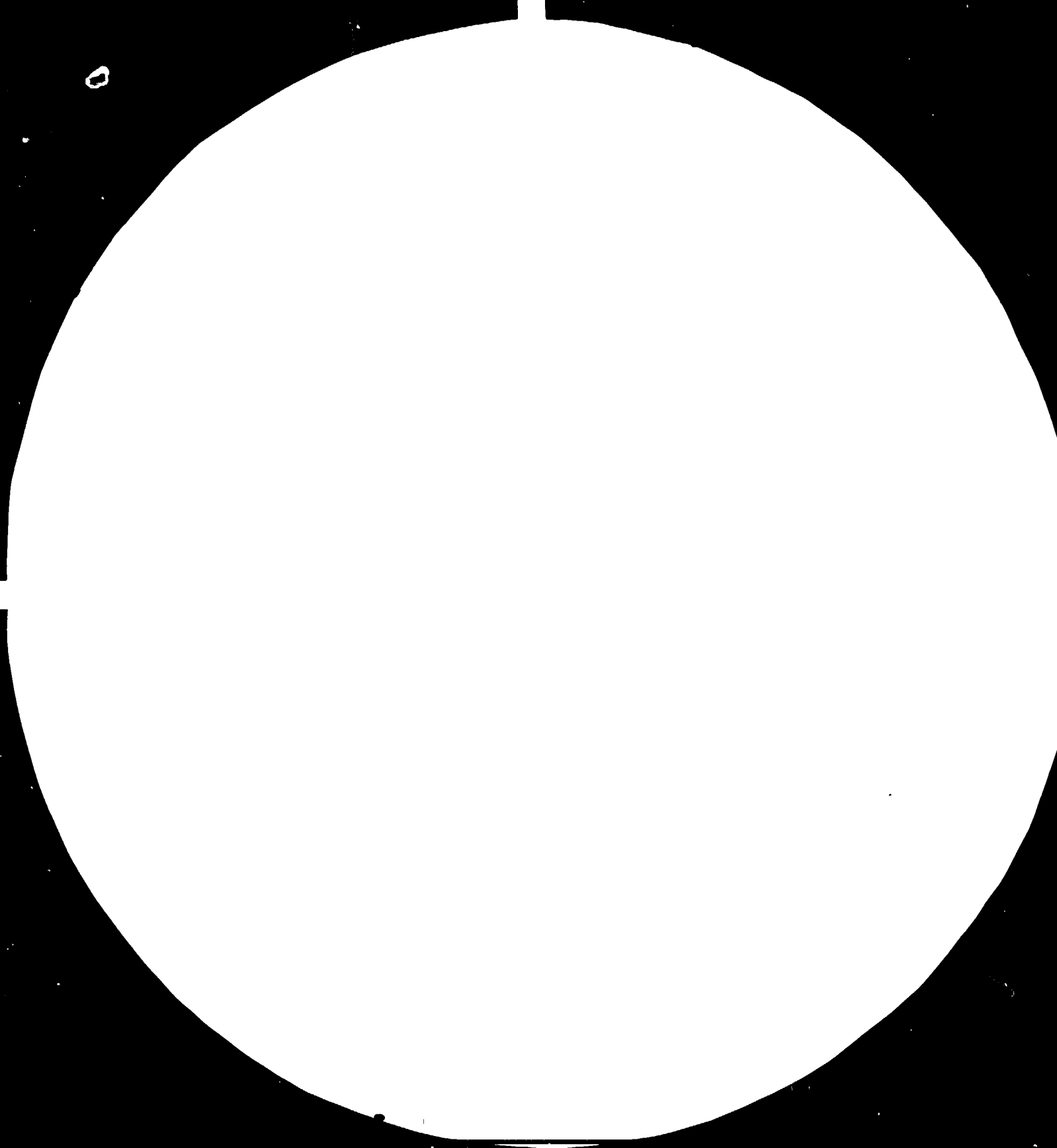
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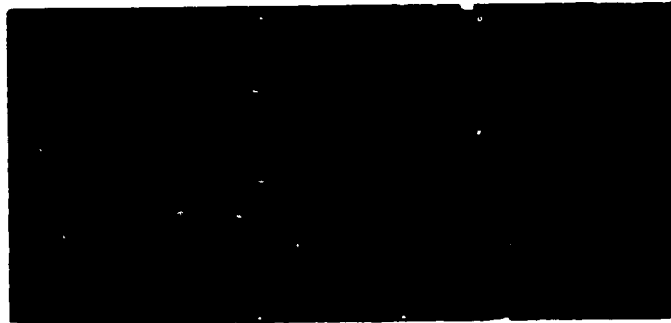


UNIDO/UNDP

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**ASSISTANCE TO THE DEVELOPMENT OF SMALL INDUSTRY
IN INDONESIA
(PROJECT DP/INS/78/078)**



**DEPARTEMEN PERINDUSTRIAN
DIREKTORAT JENDERAL INDUSTRI KECIL**





UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
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Lecture to Aspek =(ASSOSIASI PERBENG-
KELAN & PERMESINAN) Association of
Workshops and Machineries

Jakarta 29th April 1983:

Bjorn Eldsvig;

Efficient Capital Utilization.

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EFFICIENT CAPITAL UTILIZATION.

In most industries the lack of capital is an hindrance against growth of the business. Capital is often felt lacking - not always because it is not there, but more so because it is not efficiently utilized. If the capital is not efficiently utilized, the profits will decrease, may be also turn negative, and may cause the company to become insolvent and go bankrupt. Efficient utilization of the capital is hence of utmost importance.

Cost of capital

Capital always cost, and it costs for every day whether it is used or is idle. In Indonesia the cost of capital is particularly high because of our high rates of interest. Never think that "in this case" it does not cost because it is not borrowed money.

Any company will have loans or financing from external resources of one kind or another. The capital can normally be considered to be as costly as the highest rate of interest the company is paying - because if one could save on the capital one would normally have the possibility of getting rid of the most expensive of the loans - the loan with the highest rate of interest or the toughest conditions.

If the company is in the exceptional situation that it does not borrow, the money, if not invested could have been lent out or deposited in a bank to gain interest as an alternative. However, if not used for the intended purpose one has the possibility of engaging the capital in alternative increase of the business, gaining interests higher than the bank deposit interests and higher than the borrowing interests. It is therefore normally fair to calculate investment interests at a fairly high rate of interest, asking : What would we do with the capital if not for this purpose and what interests would that have gained ?

Capital for Fixed Investments.

Do not invest in a project just because it is profitable, without finding out whether embarking on another project or implementing the project in a different way would be more profitable ! Both the capital and also your own involvement capacity is limited, so you have to make a choice, you can not involve in everything that is profitable !

Whether or not ^{to} buy the new machine

One may think that the money is available, and that one always will get some profitable jobs on the machine, and also that it is aimed at attracting customers carrying also other jobs along with; so why not ? A company bought, for available means, a machine at US \$ 300.000 and expected to operate it at least 200 hours/year at US \$ 100 per hour which would give an additional income of \$ 20,000 p.a.

But what the company did not calculate was the following fixed costs that followed the machine (costs that would remain whether the machine is used or not) :

- Interests, as of the most expensive capital,
\$ 300.000 x 30 % = \$ 90.000 p.a
- Interests on necessary additional investment
in lifting equipment, installation, etc
\$ 40.000 x 30 % = \$ 12.000 p.a
- Rent for occupied space in the workshop
200 m² x 20 \$ = \$ 4.000 p.a
- Depreciation of equipment
\$ 340.000 x 5 % = \$ 17.000 p.a

Total yearly fixed costs whether operating
the machine or not = \$123.000 p.a

Hence one can consider that the machine must operate at \$ $\frac{123.000}{100}$
= 1230 hours p.a. before starting to bring any profit.

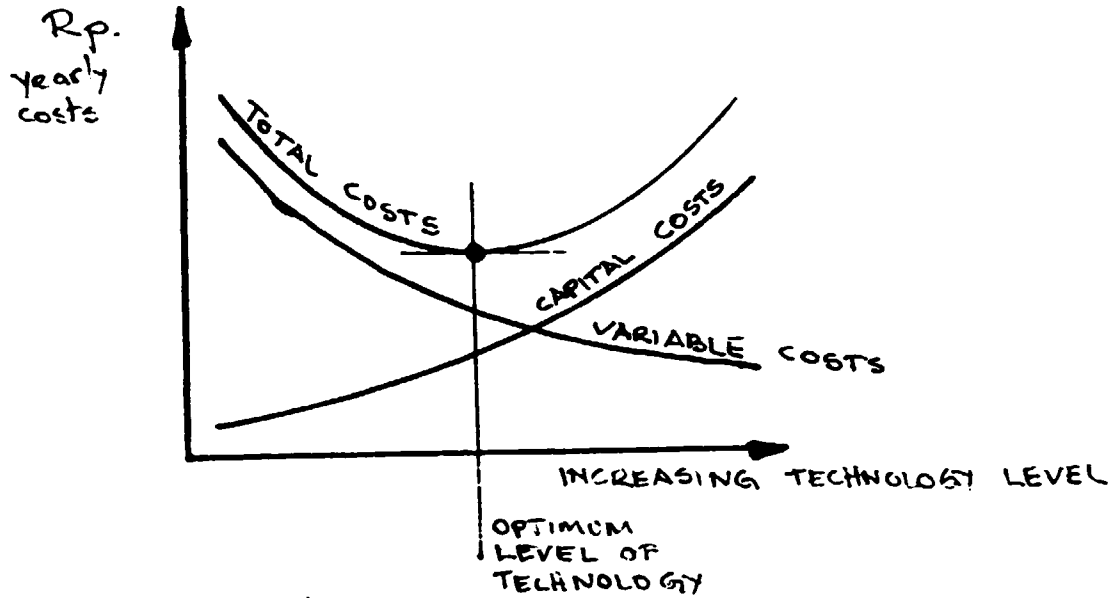
The question was: could one have used the available capital differently to give better results ? And the question remains: How can one sell this many working hours p.a ? These questions are of course more relevant before than after buying the machine.

Selection of Technology.

The question is not whether to invest in capital intensive or labour intensive technology, but to find out which technology is most profitable. The more use of capital the less involvement of labour. A comparison ^{can} easily be done like this:

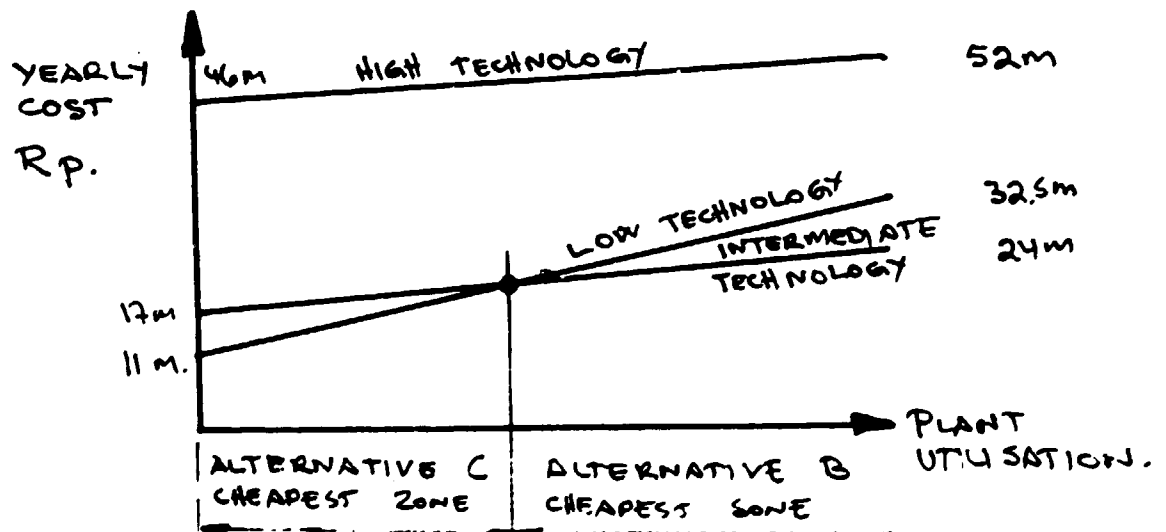
	Yearly costs for 3 different technologies (mill £).		
	Alternative A High tech- nology	Alternative B In between	Alternative C, Low Tech- nology
<u>Variable costs:</u>			
- Cost of operations with connected overheads.	2	5	20
- Cost of electricity	2	1	0.5
- Cost of maintenance and consumables	2	1.5	1
Total variable cost	6	7.5	21.5
<u>Fixed Costs:</u>			
- Depreciation	15	5	2
- Interest of Investment	30	10	4
- Rent for occupied space, etc.	1	2	5
Total fixed cost	46	17	11
Total yearly cost	52	24.5	32.5

In the principle the selection technology level can be visualized as follows:



The optimum level of technology can be understood as where the total yearly costs are the lowest. Because our labour costs are low, the economical level of technology will always remain more labour intensive than in more developed countries.

It is in the example obvious that the (A) alternative is not fit. But what is more economical of (B) and (C) depends on to which extent the plant will be utilized, seen as follows:



42% of
CAPITAL COST

When the work load is uncertain, it is safer to use alternatives with lower capital costs.

Compare the economy of the different products or departments.

The industry has regularly a tendency to manufacture too many different products. That means that one will not get time to develop any of them into functional competitive executions, and one will lack behind in the competition. Also the serial size will be too small and the production less economical.

The reason for this sort of spreading of the efforts is in most cases the lack of proper marketing. Concentrating on fewer better developed products also improves the possibilities of getting a reasonable share of the market.

When checking the contribution to the profit from the different products, is it quite normal to find that one or 2 products cater for the major income.

It should therefore in most cases be easy to concentrate all major attention to these products, and may be to abandon some of the others.

But to do this, it is quite important to know how the economy is distributed. Even if not operating any fully pledge management accounting system, is it always possible to find the approximate figures to fill into a table like this, expressed in million Rupiah per year:

	Product A	Product B	Product C	Product D
A Yearly net sales, deducted commissions and sales expenses				
B Material costs				
C Labour costs				
D Electricity cost				
E possible other variable costs				
F Total variable costs (B + C + D + E)				
G Net yearly contribution towards covering of fixed costs (A - F)				

The figures of this simple chart will often be satisfactory as a major background for increased specialization

Further considerations to ease the selection can be done, e.g the following :

	A	B	C	D
H Market share for the product (% of the total local market)				
I Binding of working capital Rp.				
J Management attention requirement (% of time devoted to the production of the particular product)				
Contribution/Binding working capital-ratio $\frac{G}{I}$				
Contribution/Management-ratio $\frac{G}{J}$				
Possible increase in production and sales if abandoning the less interesting product alternative, increasing others, considering the amount of working capital, management time and production capacity that than will be freed. %				
Net yearly contribution possible when concentrating the production to the most prospective products Rp				

Should we take the order at a too low price ?

Normally the answer to this simple question is no ! The appearance of the question may also indicate that too poor marketing activities are done. If however there is a genuine question whether one should accept an order on top of the normal sales programme at a lower price, than calculate the order contribution to see if it will bring at least a reasonable contribution towards covering of the (not mentioned) fixed expenses. However, do not accept such a price for a standard product, it may too easily be repeated-and can create a disaster !

WORKING CAPITAL UTILIZATION

The working capital are normally tied up in the following matters :

- Raw material stock
- Prepaid raw material orders
- Work in progress
- Product stock
- Debtors
- Bad debts
- Scrap and irregular products and raw materials
- Equipment out of use
- Fixed Investments
- Less creditors

If the production volume is dependent on the available working capital, the capital must be brought to revolve as many times as possible per-year. The wrong disposition of working capital is normally a serious hinderance against increase in sales. Binding of the capital to unnecessary purposes and unnecessarily slow rotation of the capital is a regular and serious limitation of business volume.

Inadequate binding of working capital:

Are you regularly checking the following ?

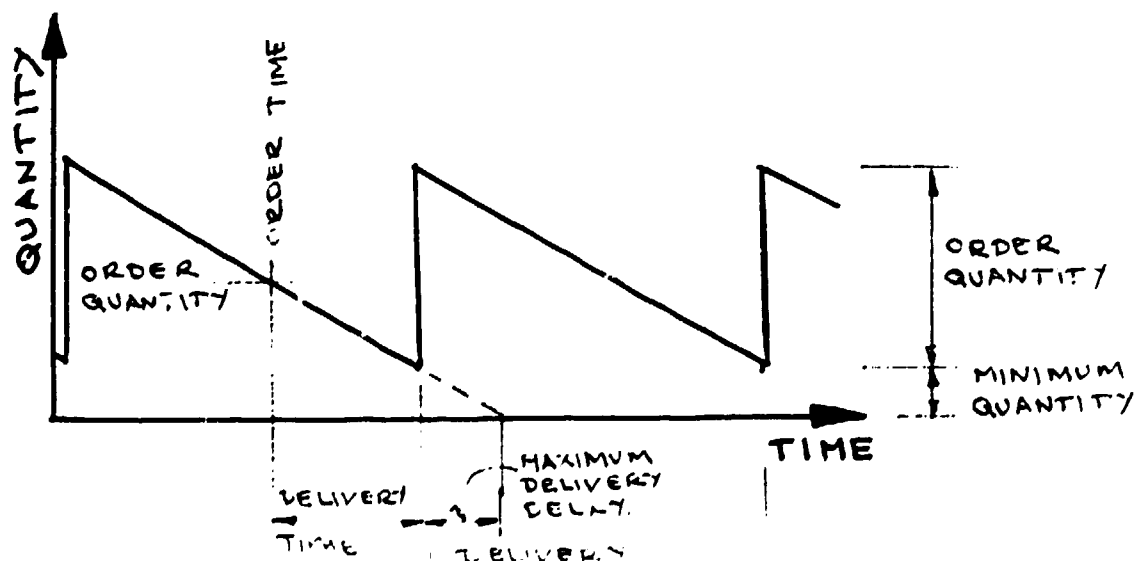
List all the inadequate capital binding, find out its values and how you can sell or use it. Then make sure it is done! Inadequate capital binding includes:

- Raw materials and components not required any longer, and wrongly purchased materials or components
- Faulty or damaged raw materials
- Uncompleted products, unsuccessful prototypes, faulty products, off-standard products, abandoned customer-orders.
- Unidentified objects, containers with unknown content
- Scrap and wastes. Machinery out of regular use, obsolete equipment
- Bad debts and payment disputes. No longer required deposits.

Having got rid of inadequate capital binding, something that requires frequent checking, try to economize the capital use. Economical serial quantities in purchase and production are important, and so are synchronization of production and sales, limitation of product building time, selection of suitable payment conditions for purchase and sales, as well as the prevention of customers over-sitting payment dates.

Purchase Order size and minimum stock

The raw material storage can for continuously used raw materials be visualized as follows:



The Minimum quantity should be just big enough to secure against becoming out of stock in the event of possible late arrival. That means that the more reliable supply, the lower minimum stock may be kept.

If supplies were 100 % reliable no minimum stock would be required.

The order time must be well in advance to allow sufficient delivery time. The order quantity should be balanced between order costs and storage costs. Order costs include costs for confirming of quotation, requesting for supply, follow up, transport component, receipt, and accounting. The storage costs includes primarily interests, insurance and space cost.

Optimum order quantity in number of units (if now quantity price reduction exist) can be calculated as:

$$Z = \sqrt{\frac{200 B \cdot F}{S \cdot I}}$$

If order cost F, e.g is \$ 25, and storage cost I is 40 % p.a, than the optimum order quantity Z in no. of units per order would be:

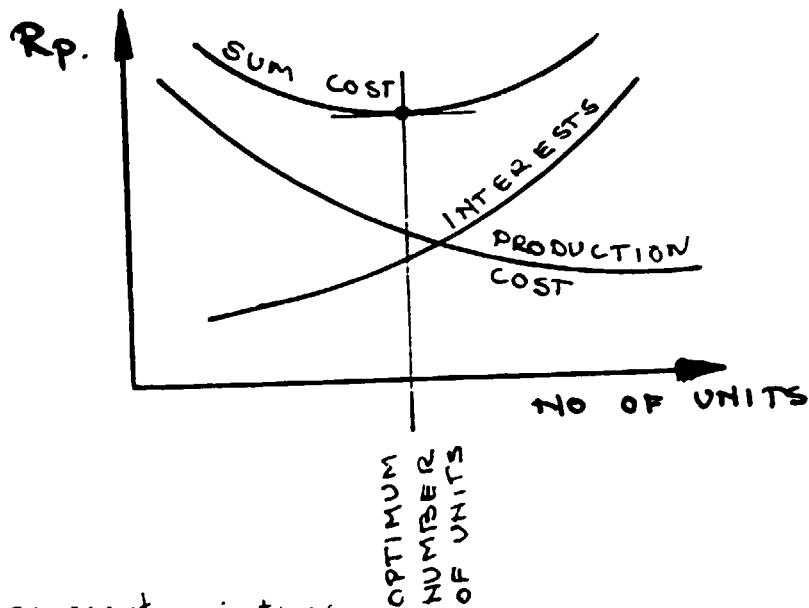
Unit cost \$ \$/unit	Yearly requirement ⁱⁿ no of units, B			
	100	1000	10.000	100.000
1	100	350	1.000	3.500
10	35	100	350	1.000
100	10	35	100	350

If quantity discounts will be given or special opportunity offer exists, this picture may be drastically charged.

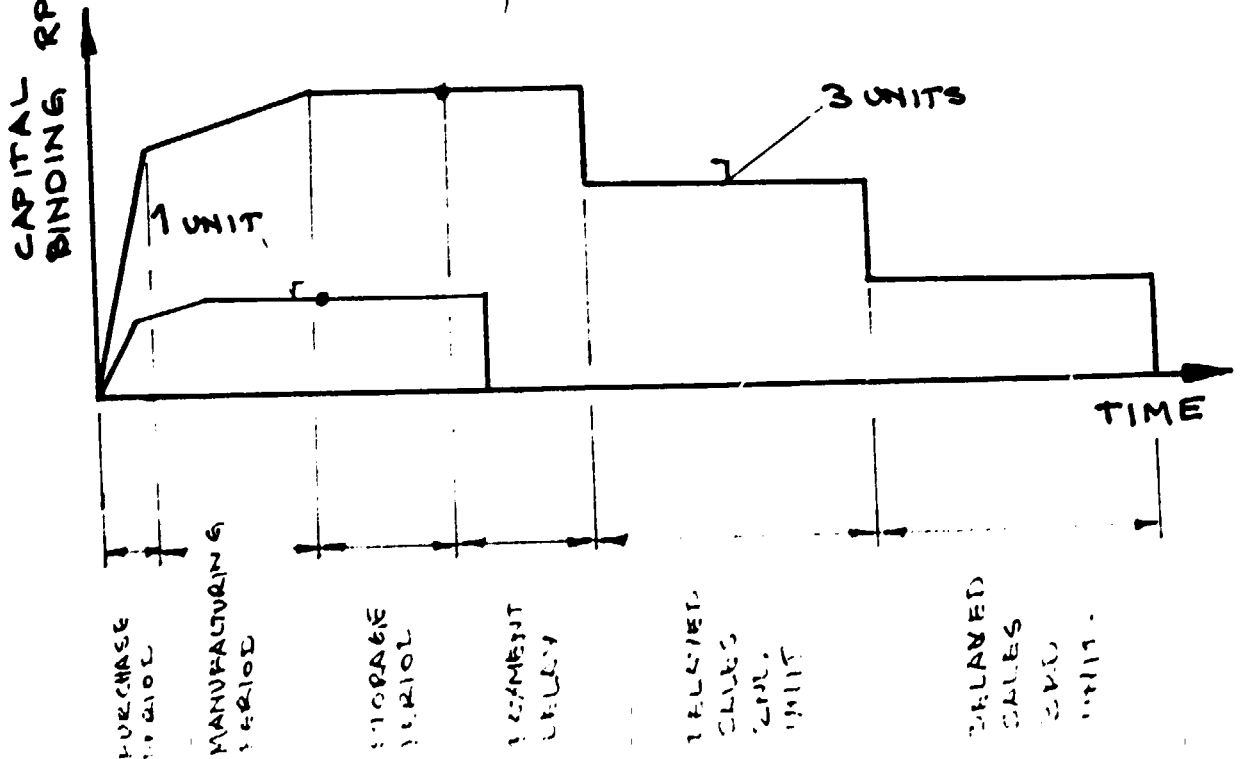
Production serial Size selection.

In a continuous production with short production time, the optimum serial size can be calculated similarly. The serial start cost F than will include: Preparation for production, machinery adjustments (including losses due to production stop) and extra start up material consumption.

In machine building one also can use a different system seen as follows:



The payment picture may look as follows:



The cost can be calculated approximately as follows as an example :

	Interest per Unit, \$	Production start cost per unit	Interest + production start cost per unit
1 Unit : Interest for \$1.000 at 30% in 4 months	100	\$ 400	500
2 Units : Interest for \$1.000 at 30% in 6 months	150	\$ 200	350
3 Units : Interest for \$1.000 at 30% in 8 months	200	\$ 133	333
4 Units : Interest for \$1.000 at 30% in 10 months	250	\$ 100	350
5 Units : Interest for \$1.000 at 30% in 12 months	300	\$ 80	380

In this example 3 units built in a serie would be the most economical. With different interest rate and production start costs the result would be different.

Synchronize Sales and Production with each other

First of all start to manufacture what there is a demand for. Please listen to the salesman! When the production of a product is established, than do not any longer make what is requested, but rather put pressure on selling what is on the production programme ! Concentrate on as few products as possible for filling the production capacity. Do not any longer listen so much to the salesman about the big demand for everything else, but concentrate on selling what you are already manufacturing !

Do a good timing of start and completion the manufacturing series, so that as many units as possible can be supplied as soon as they are ready. That means : Consider the market throughly to determine when to start. Have you first started, than concentrate the sales efforts so that as many units as possible can be sold without too much delay. Make up a sales plan according to the production programme, and the binding of working capital can be greatly reduced.

Rationalize Product Building Time

A long building time for the products binds capital and space unnecessarily. The total production programme can be greatly increased if the building time can be reduced. It will often pay to draw a time plan for the product building, finding out how the different activities are linked together, and trying to reduced the total time as much as possible. Use a Gantt plan or a Pert network plan.

Optimize Payment Conditions for Purchase and Sales

Do not oversit the agreed payment times for your purchases. That damages the confidence and you will only be refered to more stiff payment terms in the future. But at the time of purchase negotiate so much delayed payment as possible. You pay expensive interests for your working capital, so why not release a small portion of your interest gain to the suppliers in the form of a slightly increased price, omitting of cashs discount or what ever. But however, do not accept this without checking that what you pay extra to him is more than compensated in interest reduction for your bank loan.

The same is the case for your sales. Give extra discounts for timely payment. It is much better to give early payment discounts on a slightly higher price than to charge extra interests for over due payment. At the

same time, when finalizing the contract, agree on very clean regulations with you customer for the calculation of overdue interests. Do not wait with that-you will than be implementing annoying punishment regulations which may cause you to loose a good customer ! Again make sure that the allowances are clearly within the frame of the interests you pay.

Maintain Payment Limits

It is quite normal to wait with reminding the customers about payment until the matter is very much overdue. That not only affects your working capital seriously, it also shows the customer that you are not too particular about the conditions and that it is possible for him deliberately to delay the payments to you.

Therefore stick strictly to the conditions and make him to understand that you will do so. However, always keep a very friendly contact with him and make sure that you always notify him in due time before taking any action.

Follow the regulations above and you will find out that the working capital you already have can stretch to a very much bigger production with less problems!

Jakarta, 29th April, 1983.



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