

# THE OPPORTUNITY PRESENTED BY THE U.K.'s HIGH STOCK INVESTMENT

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British Industry has been under attack from critics in all quarters through lack of investment over the post war period. This is now a well known theme and is illustrated in many different ways. Most topical is perhaps the number of robots in use in each country. British robots are now represented by the British Robot Association where a recent report revealed that the U.K. has only 700 robots in use, whereas Japan has 10,000 and U.S.A. 5,000.

This figure reflects recent investment trends but the problem has been around for many years. If we compare the investment ratios\* Japan and Germany outstrip the U.K. by nearly double and one and one half times respectively for the post war period.

There is now a unique opportunity to fund investments through a reduction in the high levels of stocks held by most U.K. manufacturing companies.

Company stocks in the U.K. are often two to three times those of equivalent U.S.A. companies and perhaps four or five times Japanese companies.

Typically a company with sales of £50 M per annum will have £15 M tied up and could release half of this to fund other investments, and, at the same time, reduce manufacturing costs.

This is a big cherry, a big opportunity, an opportunity not a problem and it warrants the attention of the Chief Executive.

It warrants his attention not only because of the size, but also because it is a business issue and not an issue which can be handed lock, stock and barrel to your Production Controller – he will not see the Big Picture.

This Big Picture portrays the whole business with manufacturing properly in perspective as the key resource to satisfy customer needs. It recognises that the cost of the manufacturing operation is high but also that manufacturing cost is critically affected by all other activities of the business. In short it is the view for the Chief Executive, which he must use alongside financial results and budgets for controlling the business.

## In Defence of the Production Controller

So what is the problem, why do we have high stocks?

One of the issues is a communication gap between Production Controllers and General Managers.

The Production Controller is perceived as the guy who always rushes

round, drops everything to deal with the latest urgent demand from an irate customer who has just given the Chief Executive a roasting. Of course he always gets us out of trouble, a thoroughly reliable chap, works hard. We don't like the fact that he writes numbers on his hand and on his shirt sleeve and we always have to take him to task for the high stocks in the factory – who else is there to blame! Stocks after all are a millstone round the Chief Executive's neck, a problem area in the business, not an opportunity.

Unfortunately our Production Controller doesn't really understand the Chief Executive. Equally the C.E. doesn't really understand the P.C. who may protest that the high stocks are caused by the Marketing Manager because orders were cancelled, by the Design Engineer because he has redesigned the product; by the Production Manager because he never makes what's needed; by the Production Engineer because the tooling is not ready on time.

He may even add the C.E.'s own misdemeanours to the list.

Excuses, excuses.

We need to concentrate on profitability, market share, new product introduction. But our Production Controller doesn't really understand what this means. He only knows about components and assemblies or rather about shortages of components and shortages of assemblies.

He has a lot to learn!

But so has the Chief Executive – surely he should take the initiative.

The Chief Executive needs to understand how the high level of investment in stock results from:

- Customer ordering systems.
- Product design and product range.
- Production disciplines.
- Shop floor layout and manufacturing methods.
- as well as the Production Controller, his people and the system he uses.

The Chief Executive needs to consider the job of Production Controller. Perhaps he has underestimated the job. Perhaps manufacturing control is more complex, requires higher calibre people.

So where do we start?

## The Big Picture

Start with some sort of simple model of manufacturing. What are the features of manufacturing which are important.

Output is important; that we make

the right product at the right time. The output from the factory depends on what we feed in and the work already in the factory. If the input to the factory is higher than the output, stocks will rise rather like the level of water in a tank with a tap adding water at the top and a second tap through which water runs out at the bottom.

But this simple analogy is inadequate in one way because it does not portray one other important aspect of what today is called "Input and Output Control". In most manufacturing systems a new requirement will have to join a queue of existing requirements. This queue may in fact be a series of queues for different resources in the manufacturing process and represent the lead time for manufacture of a product. We can get quick delivery of a particular order by queue jumping and this is the procedure when the C.E. wants an order cleared quickly. But what happens behind it? What has been the effect on other orders and particularly on stock levels?

Well all the other orders get delayed which apart from the effect on customers also inflates stocks.

"Input and Output Control" represents a way out of the dilemma. The queue can be reduced if the input is below the output. This will cut lead times and at the same time release cash invested in stocks.

This is contrary to the view held in many quarters of U.K. manufacturing. The popular view is that you can build whatever you want at short notice provided you have plenty of parts around. Equally popular is the argument that plenty of work in progress will increase productivity. The idea being that operators will strive to clear work which they can see.

It sound very plausible but in fact is a recipe for disaster for two main reasons:

- The idea of holding stocks to give flexibility is extremely expensive and unless carefully managed will not reduce lead times. On the contrary it will increase lead times because of the congestion caused in the factory.
- Productivity will be reduced because of the disruption caused by a 'panic driven' system.

Apart from these logistical arguments there is an even more compelling 'business' reason for operating differently. We cannot compete internationally. We cannot compete on price. We cannot compete on delivery. All of this because our investment is tied up in stocks and therefore, not available for new technologies.

Our international competitors are already ahead on robots and are

\* Ratio of Gross Investment to Gross National Product.

investing in closed-loop manufacturing systems and flexible manufacturing systems. Such approaches shatter our current views on productivity and overcome the dilemma between customer service and stocks.

So we need the Big Picture and that starts at the top of the company because it is the Chief Executive and only the Chief Executive who can initiate a process of fundamental new thinking. This must include recognising responsibility for dealing with the essentially multi-functional status of company stock control; for initiating a process of education across the company to change fundamentally the view of stock; and for providing top level management of the company's investment in stock.

### Computer Technology

So what has changed? How can the Chief Executive take control?

Most Chief Executives get involved month in reviewing manufacturing performance. Perhaps a meeting to set the output targets for the next three or six months, perhaps to discuss the bottlenecks, to hear why we failed last month. How much better it would be if we could deal with bottlenecks before they cause delays, before our customers are let down. How much better if we could get away from the panic mode of operation and spend more time planning and less in recrimination for failure.

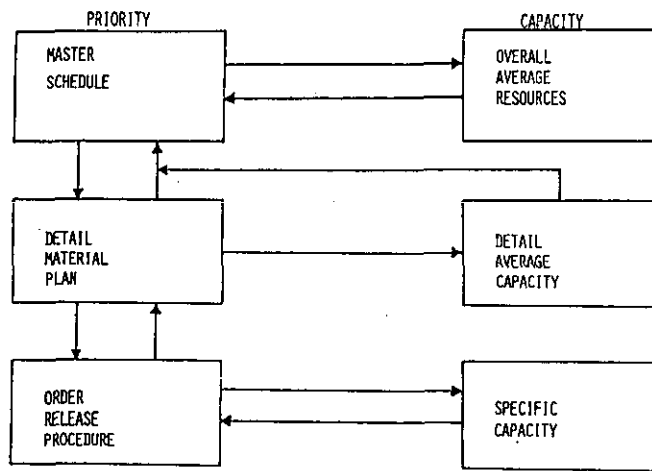
The computer has become acceptable for replacing vast armies of clerical staff in wages departments, accounts and sales and purchase ledger departments. As far as material control is concerned it has only been used to do jobs previously done clerically.

Our schools are now training young people who are as familiar with computers as many of us are with pencils and paper. But if we wait for their influence to come through to the top of manufacturing, change could be another generation away. The tools are available now to improve the performance of the Chief Executive in manufacturing and to provide the handles to take control.

Most companies already have computer materials systems. Such systems provide the schedules for suppliers and the factory. But the real problems of controlling input in relation to the resources and to the required output cannot be handled at this detailed level. A high level view is necessary.

Such a view is provided by a technique called Master Production Scheduling. It is a high level plan for manufacturing. Software is now available which can simulate manufacturing resources and predict bottlenecks before they occur. The

Figure 1: Basics of the "Closed Loop" System



consequences of overloading the factory can be foreseen, the consequences of the decision by the Chief Executive to accept another order can be weighed against the cost.

Master Scheduling provides the facility for top management to model the manufacturing facilities and to predict delivery and cost performance. This top level system can also be linked directly to detailed provisioning systems used by the Production Controller, so that everybody is playing to the same music.

Modern computer software offers the opportunity to improve high level decisions and to link these to the detailed planning of materials and components essential for every manufacturing company.

The system shown as Figure 1, portrays the closed-loop concept needed for control of manufacture. At the top level, the Master Schedule is the plan for manufacture. This must take account of the priorities dictated by customers in a make-to-order situation or by the stock replenishment needs in a 'make-to-stock' situation.

But the Master Schedule will result in orders being placed on suppliers and on the factory. It must, therefore, take account of the capacity available. To do this at the Master Schedule level we must take an overall view of resources and in particular we must identify any resources which are critical. The capacity of these average or critical resources can then be used to compare the load with the capacity and to reveal any overloads before confirming the plan. Early action can then be taken to provide additional resources or to reschedule the plan.

Identifying the critical resources of a manufacturing company does require a thorough knowledge of the materials and processes used. The essential need is to provide sufficient information to facilitate effective management decisions and action.

Any type of resource can be evaluated using this technique. Typically they may include the

projection of forward cash commitment, scarce purchased materials, special skilled labour groups or critical plant.

So the Master Production Schedule is an early warning system which highlights problems and allows action to be taken before it causes disruption on the shop floor. We can now prevent those unfulfilled customer promises and that unnecessary investment in stocks.

### Benefits

The U.K. is lagging behind its competitors through lack of investment in new technology. At the same time manufacturing companies have large sums of money tied up in stocks. These funds can be released to provide the investment needed.

The Chief Executive should initiate a new approach to the problem of inventory management. By taking the opportunity provided by the latest computer software systems he can get control of manufacturing and release money tied up in stocks.

Such an attack on the real causes of our inventory problems will bring dramatic improvement to return on investment performance in manufacturing. Money spent on manufacturing control is unique in that it can improve both the top and the bottom line of the return on investment equation. Profits will be increased by better customer service, higher productivity and the reduced cost of financing stocks. At the same time capital employed will be reduced through lower stock, releasing the cash needed and for investment in new technology.

Mr A. R. Till joined CINCOM as Manager, Industrial Consultant after many years in the Lucas Group and more recently with the Delta Group. In his present job he is responsible for ensuring the successful application of CINCOM's Manufacturing Resource Planning Systems by working closely with customers.

His experience in industry includes senior line management jobs in Materials Management and General Management.

Mr. Till has a B.Sc. in Electrical Engineering and is a Chartered Engineer as well as a Fellow of B.P.I.C.S. He is currently active in B.P.I.C.S. as the Education representative for the Thames Valley region.