OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

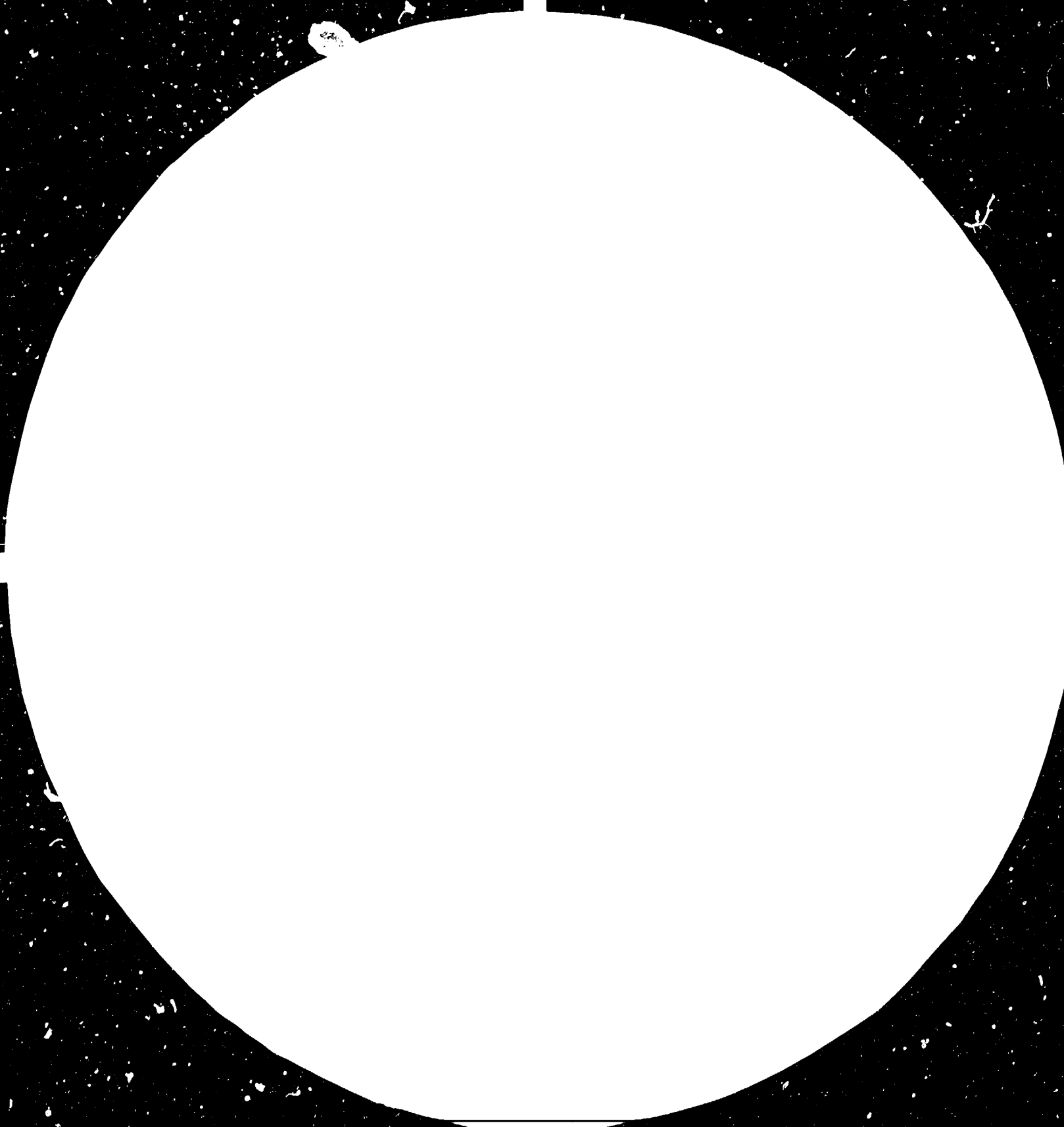
FAIR USE POLICY

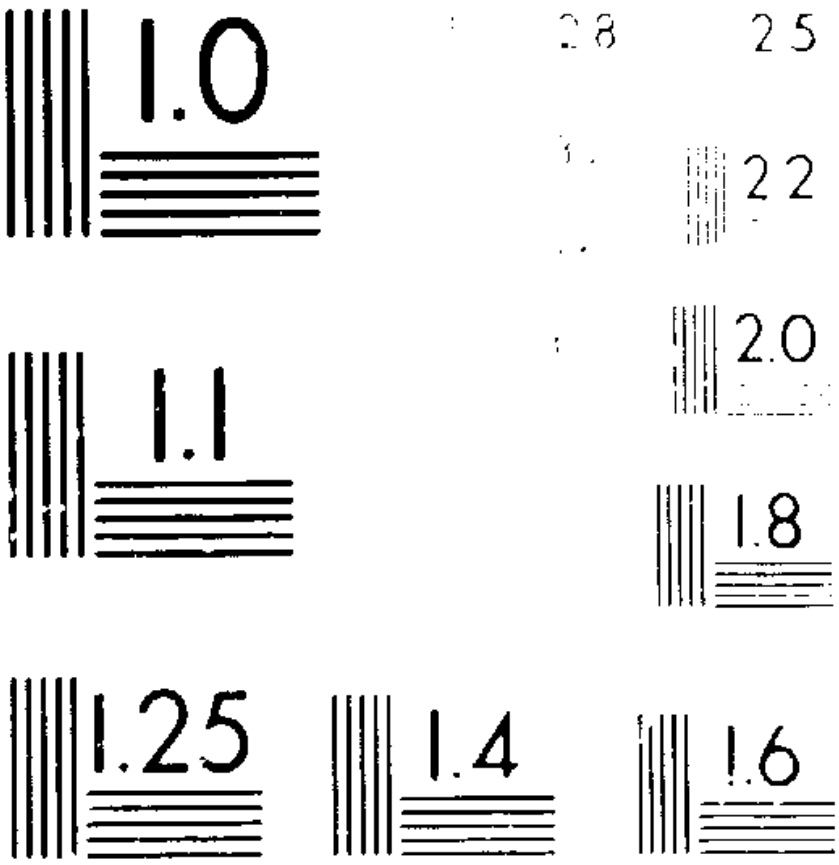
CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org




2.8
2.5
1.0
2.2
2.0
1.1
1.8
1.25
1.4
1.6

13353

Distr.
LIMITED

UNIDO/IO.513
31 January 1984

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

English

FINANCIAL MANAGEMENT AND INDUSTRIAL ACCOUNTING PRACTICES*

An Overview for the Technical Manager Within an Enterprise

by

Niall Lothian**

* The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the Secretariat of UNIDO. This document has been reproduced without formal editing.

** Senior Lecturer in Accountancy and Finance, Heriot-Watt University, Edinburgh.

CONTENT

1. Introduction
2. What is financial management?
3. Profitability and liquidity
4. Management of financial resources
5. Working capital pressure points:
   - Cash
   - Accounts Receivable and Payable
   - Inventories
   - The Need to Budget
6. Arranging finance
7. Gearing: the ratio of owners' capital to debt
8. Classes and forms of debt finance:
   - Short-term borrowing
   - Medium-term borrowing
   - Long-term borrowing
   - Alternative financing arrangements
9. Capital investment
10. Accounting and financial management
11. Accounting for external and internal users
12. What a manger does:
    - Planning and co-ordination
    - Directing and control
13. Where do costs come from? Materials
    - Labour
    - Manufacturing overhead
    - Process costing
14. Costs relevant to management decisions
15. Summary of industrial accounting sections
16. Concluding remark

Appendix An example of a working capital forecast

1. Introduction

This paper is an overview of two distinct, but closely related disciplines whose high sounding titles, financial management and industrial accounting, conceal some very simple and straightforward notions of good corporate housekeeping. We shall attempt to do no more than describe, in general terms, the purpose and applications of these tools of management; later papers will develop in depth some of the fields touched on here.

In order to facilitate an easier grammatical style, and to be able to draw on a wide range of examples, we shall use a manufacturing enterprise as our point of focus. This in no way invalidates the possible use of financial management and industrial accounting techniques in other types of enterprises; enterprises involved in merchandising, assembly, service, non-profit activities and government agencies have all much to benefit from an appreciation of the techniques described in this paper. Nor are these techniques the prerogative of enterprises of a certain size; sole traders to transnationals can all enjoy the advantages to be derived from applying them.

It should be remembered, however, that while this paper addresses itself, almost exclusively, to the concepts and tools of financial management and industrial accounting, the process of management itself cannot be cut up into neatly defined packages. Management is multidisciplinary. Managers ensure that things get done; they cannot attack problems with the narrow, blinkered vision of, say, the specialist financial manager, or the marketing manager, or the production, sales or personnel managers. Each manager, or potential manager, must be aware of at least the aims and basic techniques of his colleagues' disciplines so that he can contribute meaningfully to the resolution of the many faceted problems that confront enterprises today. This paper is addressed, therefore, to two groups:

1. Those who are currently working in either the financial or accounting function but who lack any formal training in these disciplines; and
2. those who are <u>either</u> destined for a career in financial management or industrial accounting <u>or</u> those whose work takes them close to these disciplines and who would benefit from a

reasoned explanation of what they see going on around them.

2. What is financial management?

Financial management is the global term which refers to (i) the finding of an enterprise's finance, and (ii) the efficient allocation of these funds within the enterprise. Funds come from a variety of sources:

1. Owners (or shareholders) in the form of (a) original capital injected, and (b) profits retained over the lifetime of the business.
2. Banks and other financial institutions in the form of long-term loans at fixed interest rates. These bodies will also negotiate medium and short-term lending facilities at varying interest rates depending on the institutions' assessment of their risk.
3. Short-term creditors in the form of goods and services supplied without immediate cash payment.

The funds are used for a variety of purposes:

1. The purchase of fixed assets such as land and buildings, plant and machinery, factory equipment, office equipment and motor vehicles, all of which are used in the production of manufactured output.
2. The purchase of inventories of raw materials, lubricants, and supplies needed to maintain a smooth flow of production.
3. The payment of wages and employees' benefits.
4. The provision of finished goods awaiting sale and partially finished goods called work-in-progress. (These items have already consumed raw materials, lubricants, supplies and labour services, all of which require funds.)
5. The provision of accounts receivable, that is permitting customers to purchase completed production without requiring them to pay cash immediately.
6. The supply of sufficient cash-in-hand.

Financial management is concerned with ensuring that these funds flow around the enterprise in the most efficient way. For example, if the company wishes to boost sales it might decide to extend the period before it presses for payment from its debtors. But an efficient financial manager would ensure that, as far as possible, he could squeeze a similar extension of time from his creditors, otherwise he would soon find that the extension of credit period allowed to customers would lead to a cash

shortage which would have to be financed from some other source. Or again, a boost in sales would require an increase in inventories which require a use of funds. The financial manager would need to ensure that a suitable source of funds could be secured for this.

In the last simple illustration we see an excellent example of the multi-disciplinary nature of management. The intimation of a boost in sales may originate from the sales force who believe turnover in certain product lines can be achieved without increased sales cost. But it would be senseless for the company to plan for this favourable future if the production manager could not achieve the increased production figures because of a shortage of machine capacity, or skilled labour, or supply of raw materials. Even if it were possible for him to acquire the additional capacity or materials, the financial manager may not be able to provide the required funds on terms which would make the incremental sales profitable. Functional managers must not work in isolation.

In financial management, the stress is on efficiency. Efficiency implies profitability. There are many ways in which a financial manager's efficiency (or lack of it) can contribute to an enterprise's profitability:

1. By ensuring he achieves the correct balance between owners' capital and loan capital (the latter source of funds must be serviced by interest payments, the former need not).
2. By ensuring the production departments do not carry excessive (and costly) inventories.
3. By ensuring that the company explores the possibility of leasing new assets instead of purchasing them. This has the effect of releasing costly capital for other purposes.
4. By securing the cheapest sources of loan capital on the best possible terms.
5. Above all, by planning the enterprise's flow of funds for the future rather than having to respond to a series of unexpected (and usually costly) events as they occur.

The accurate recording of the funds is itself a pre-requisite of an efficient financial management system. This is discussed in the sections of this paper devoted to industrial accounting practices.

The financial manager's role, as can be seen from the above description, is moving beyond the narrow task of cash stewardship.

He must concern himself with every aspect of the enterprise's activities, including the strategic decisions being taken at the very highest level. As his company grows, he must become intimately aware of existing, and impending government and quasi-government rulings; he must understand and keep abreast of the workings of the capital markets at home and overseas. Every corporate action will eventually need the lubrication of cash; the good financial manager is the company official who knows the quality and quantity of lubricant to use.

3. Profitability and Liquidity

The notion of profit is a familiar one, whether we live and work in a market dominated economy or in a regulated economy. In corporate terms, profit is the surplus left over when all of the costs of producing and selling those units which have been sold are deducted from the revenue derived from sale. This sounds a very much simpler exercise than it is in practice. It is not the purpose of this introductory paper to describe in detail the problems surrounding the measurement of profit but a few points should illustrate how difficult the task is:

(a) Management must choose one method of depreciating fixed assets and one method of valuing closing inventories. But they have a wide range of methods to choose from, each one producing a different depreciation figure and inventory figure, and therefore a different profit figure. Within fairly controlled limits, management are free to change their selection of methods. Profit varies with each change.

(b) Accounts are normally prepared on the accruals basis. This means that payment of costs and receipt of revenue do not have to be physically made in order to be included in the accounting period's profit calculation. For example, a major customer might purchase goods towards the end of the financial year and not pay for them until the beginning of the next financial year. The fact that the selling enterprise had not received the money by the year-end does not prevent it from booking the transaction as a sale in the earlier year.

(c) In some industries the definition of a sale is not even easy. For example, in civil engineering firms which are engaged in long-term construction contracts spanning a number of accounting periods, how do they recognise the portion of profit (or loss) which should be included in each year?

Various formulae are used but they are, at best, a reasonable guess; no one can be sure about the size of the real profit (or loss) on each contract until it has been completed.

But the financial manager is concerned with more than just measuring costs and revenues, he must concern himself with controlling profit. This involves him in a number of important tasks including:

(1) ensuring that the enterprise earns sufficient profit in relation to its capital base. If "the return on capital employed" is low, it could indicate that the enterprise is carrying too many under-utilised, or idle, assets which should be sold;

(2) ensuring that the enterprise is not holding too much inventory of raw materials and/or finished goods in relation to the sales the enterprise is generating:

(3) keeping accounts receivable reduced to a level which will not harm customer goodwill (i.e. if the enterprise is too strict, its customers will take their business away to the competitors who do give credit).

In sum then, the financial manager is involved with his engineering and production managers to ensure that the enterprise's assets work hard, that surplus and inefficient assets are disposed of, and the enterprise acquires the most appropriate and technologically advanced machinery for the job. In this way, competitive and sellable products are made, costs are reduced, and profits are increased.

Note,then, that profit measurement and control is a complex activity. So too is the task of interpreting the profit figure. Management base their dividend distribution to shareholders on the profit figure; government bases its tax demands on profit; labour bases its claim for wages increases on, among other things, profit. Dividends, taxes, and wages are all cash outflows. But profit is not cash. Profit is an accounting and economic concept which undoubtedly helps to generate corporate cash but, as has been shown in the discussion above, many non-cash events are identified in the profit measurement process as well.

Financial managers are far more concerned with cash, or liquidity in the language of business, than with profits. To confuse the two can lead to dangerous consequences. At the extreme, a company can report healthy profits but run out of cash to meet ongoing costs, far less end-of-year dividends and taxes; it may even go out of business because of its illiquidity. Financial managers therefore concentrate on cash flows rather than profit and loss accounts.

4. Management of financial resources

Put simply, the financial manager is principally concerned with two matters:

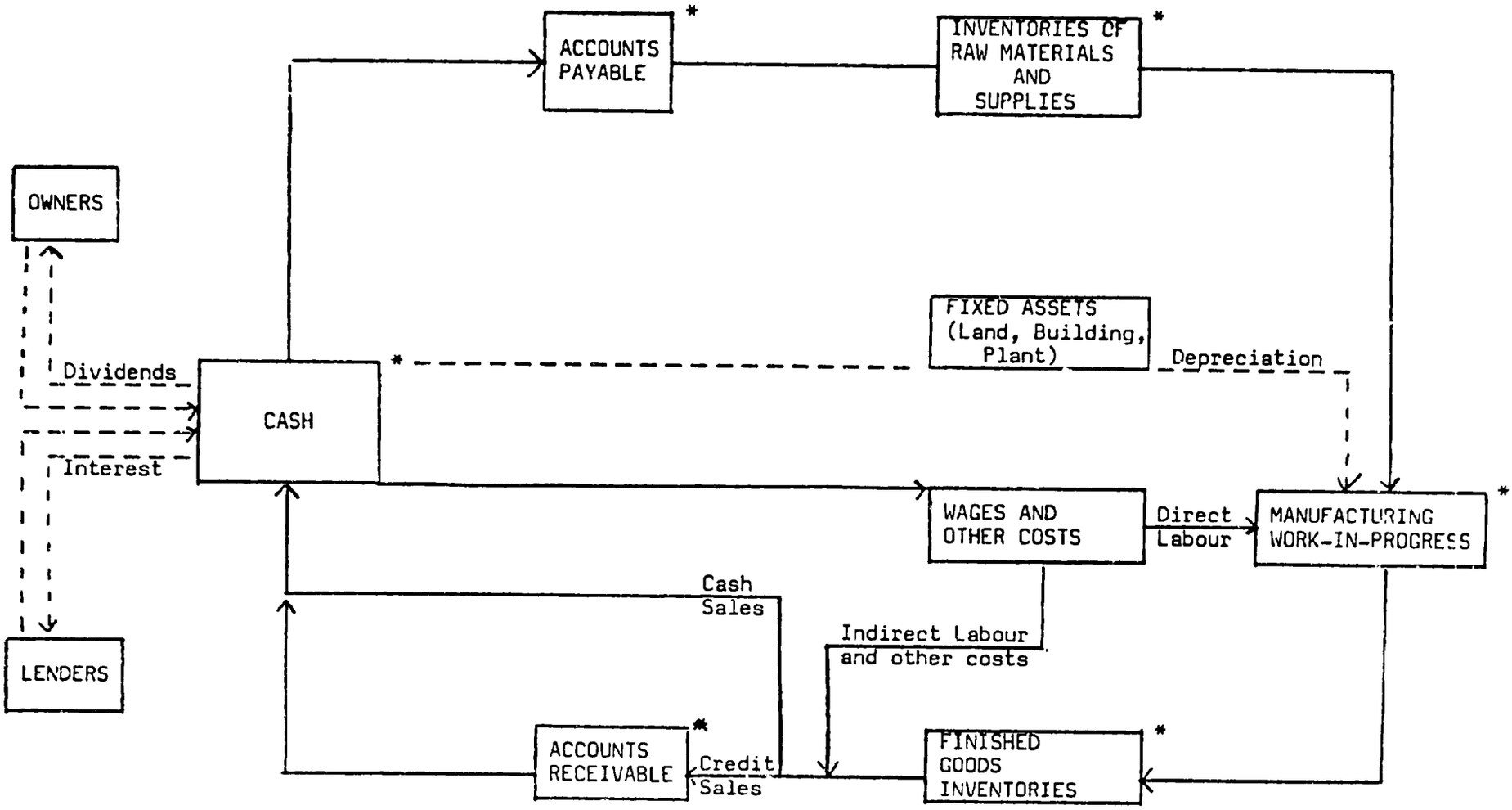
(a) arranging for sufficient funds to be available at the right place at the right time for new, and existing, projects; and

(b) looking after the day-to-day financial resources for ongoing activities.

Let us consider briefly both of these tasks; we shall start with the second one.

The financial resources which are required on a day-to-day basis are called working capital, to distinguish it from the long-term use of capital for the purchase of fixed assets, etc. Working capital comprises cash, raw materials, work-in-progress, finished goods, and accounts receivable and payable. The circulatory and interactive effect of working capital can be illustrated by the diagram on page 7.

FLOW OF FUNDS WITHIN A MANUFACTURING COMPANY



Solid lines reflect flows of working capital
Hatched lines reflect flows associated with long-term capital
Asterisks denote "pressure points" (discussed in text).

5. Working capital pressure points

The diagram highlights, by way of asterisk, the key pressure points on the working capital cycle, points where the astute financial manager keeps his finger on the pulse. A brief discussion of each point follows:

Cash: This is the heart of the working capital cycle which keeps the life-blood of the company flowing. It must neither be deprived nor be over-whelmed. The financial manager must strive towards a balance between having a sufficiency of cash and using the resources efficiently. Managers' natural cautious instincts tend to lead them to hold too much cash, just in case an attractive investment opportunity presents itself. But cash is expensive and must not be kept lying around "on the off chance". The motto is therefore "sufficiency versus efficiency".

Accounts Receivable and Payable: Credit sales are an unavoidable, and unfortunate, part of doing business. If your competitors offer credit terms, then so must you. But giving credit is expensive. In effect the selling company is financing its customers' purchases for a given period. The more generous the terms, the more expensive it becomes for the seller. Companies must strive for a balance between giving competitive terms which will attract customers and having a strict collection policy which will minimise cash outlay, and therefore cost, but which could alienate customers. The reverse holds true for accounts payable. Companies should seek the best terms from suppliers. They should certainly avoid the situation where they offer more generous terms (in terms of length of time to pay) to their debtors while creditors enforce strict terms. The imbalance which this creates can be most damaging to the working capital cycle.

Inventories of raw materials, supplies, work-in-progress and finished goods:

Inventories of raw materials and supplies are held in order to avoid disruptions in production due to stock-outs. Companies may also purchase inventories in advance of any anticipated price rise or threatened scarcity. Inventories of work-in-progress and finished goods are an inevitable consequence of production, the level of which should be determined by anticipated sales. There exists in most manufacturing enterprises a natural inclination on the part of the production and sales function to maximise inventories so that neither function is inconvenienced by stock-outs which are disruptive, expensive and damaging to customer goodwill. But inventories are themselves costly. The financial manager must ensure that the minimum levels are

carried in order to minimise the cash outlay together with the risk of obsolescence inherent in excessive inventory levels.
A simple example of a working capital forecast can be found at the end of this paper.

The need to budget Working capital management is only part of the financial manager's wider duties which are termed budgetary control. An enterprise cannot be allowed to drift along aimlessly, being blown from one course to another by managerial whim or market pressures. It must have a plan of where it wants to go. This is the role of top management to formulate and update this plan. The budget is simply the translation of management's business plans into money terms. A budget can be for three months, six months, one year or any other period that is appropriate to the enterprise.

The advantages of budgeting include the following:

(i) the regular process of drawing-up and amending the budget has the effect of uniting managers who might otherwise not consult each other. For instance, the sales manager spells out his aims and targets; the production manager matches these with the attainable capacity at his command; the purchasing officer considers the availability of sourcing and cost of the raw materials needed; the personnel manager translates the production and sales plans into requirements for skilled and unskilled workers, and increases or decreases in the administrative staff.

(ii) once agreed, the budget becomes a benchmark against which to measure actual performance; without a budget, it is impossible to gauge how well or badly the enterprise is doing. Managers can call for explanations why any differences appear between the budget and the actual performance.

(iii) by being in charge of collating the budget, and setting some of the financial parameters within which his managerial colleagues are to operate, the financial manager has detailed knowledge of every crucial operating function within the enterprise which helps him in his other duties of planning and control. With debt finance, repayment is due according to an agreed timetable and, in the meantime, interest is due regularly. While there can be no certainty that interest repayment will be a smooth process, lenders assume less risk than the owners because their claims have preference over the owners when firms fail.

6. Arranging finance

The other principal role of the financial manager is to ensure that the right amount of finance is available when it is wanted. It could be required to build a new manufacturing plant in another country, or to repay an earlier long-term loan now due for repayment, or to increase working capital in a subsidiary which is planning a new product line. Each type of project requires a different type of finance; provided the financial manager has sufficient warning of finance requirements, he should be able to arrange the best terms for each project.

As can be seen from the Funds Flow chart, in an enterprise its capital can be broadly classified either as owners' funds or as debt. Owners' capital is permanent risk capital since it is not repayable and there is no assurance that the owners will receive payment (dividends) for the use of their money. On the other hand the whole of the profits of a business (after deductions for tax and interest payments on debt) accrue for the benefit of the owners who can either withdraw it by way of dividend or can build-up additional capital by retaining it in the business.

7. Gearing: the ratio of owners' capital to debt

How much debt capital should an enterprise borrow in relation to the capital contributed by the owners? There is no firm answer to this question: every company is different and circumstances alter cases. For the majority of companies in most industries it is probably a useful rule of thumb to think in terms of a gearing ratio of not more than 1:2, that is, with the owners' capital being at least twice borrowings. When a firm's capital structure drifts away from its "normal" ratio, whatever that may be, this should be taken as a danger signal, that is, as a strong sign that a further injection of owner's capital is becoming desirable. In the eyes of the shrewd lender, the owner's capital base represents the commitment of the owners of the business - the greater that commitment, the greater the likely willingness to contribute loan capital.

8. Classes and forms of debt finance

The principal distinction in the various types of debt available is in the timing of the required repayment:

Short-term borrowing: This type of finance is most suitable for transactions such as a seasonal increase in inventories or accounts receivable which is

expected to be self-liquidating over a short period, normally within one year. Bank overdrafts are flexible and relatively cheap form of finance for this purpose. Increasing trade credit received from suppliers may also be possible. Short-term needs should be financed by short-term borrowing.

Medium-term borrowing: "Medium term" is generally considered to be between one and five years and is required for such projects as plant and machinery replacement. Banks and finance houses are usually prepared to lend sums of money at rates of interest which move with changes in rates in the money market. Borrowing at variable interest rates makes the forecasting of cash flows more difficult but there can be advantages over borrowing at fixed rates if there is a possibility that market rates will fall.

Medium-term finance will be provided against

1. some form of security;
2. an adequate cash flow projection; and
3. an assessment of the borrower's manufacturing and trading capability.

Long-term borrowing: "Long-term" is any period in years over five, but it seldom exceeds twenty. Loans, obtainable from financial institutions, government agencies and banks (or a mixture of such sources) and secured against the borrower's assets, are normally on fixed interest terms and are used for long-term needs such as capital acquisitions or a permanent increase in working capital. The lenders of long-term loans are normally as interested in an evaluation of the borrower's management as they are in the financial position.

Alternative financing arrangements

There are a large number of options for raising money open to a soundly based company which do not fall easily into any one of the above categories.

1. Sale and leaseback. Here a company sells its existing property to a financial institution for a capital sum and leases the same property back from the purchaser for an annual rent. The effect of this type of transaction is to release a sizeable capital sum for use in the business. The gearing of the business remains unchanged whereas bearing increases if the property were to be mortgaged. Clearly, it can only be done once on a particular piece of property!

2. Leasing and hire purchase. Firms can acquire assets without having to finance the whole purchase price at one time. Under a leasing arrangement, the leasing company will purchase the plant or vehicles to the company's requirements and lease them to the company for an agreed period at an agreed charge. Leasing may be particularly advantageous for tax reasons, depending on local tax regulations. The property under lease never becomes the legal property of the lessee. Under a hire purchase contract, the property does become the property of the "purchaser" at the end of the contract. It is rare to acquire assets with a useful life of over five years on Hire Purchase.

3. Factoring and invoice discounting. It will be remembered from our discussion on working capital that accounts receivable represents a "locking-up" of cash which could be used more profitably in other sectors of the business. With factoring a company sells its debtors' obligations at a discount to a factoring company who then collects and keeps the cash from debtors. With invoice discounting, the accounts receivable continue to be paid to the company by the debtors but the finance house has already provided cash to the company based on the discounted value of the credit sales invoices issued by the company. As the debtors' cash is received by the company it is passed over to the finance house. Both methods provide immediate cash for accounts receivable but are typically a very expensive form of debt finance.

The most appropriate choice among the various sources of capital, both owners' and debt, depends on several considerations which are in the domain of the financial manager. He must get it right: mistakes not only can be costly, they can sometimes be fatal for the company's future profitable operations.

9. Capital investment

We have discussed briefly, the financing requirements of capital projects such as a new manufacturing plant or a fleet of new vehicles. We must now consider the financial manager's role in choosing the capital

investment project from the range of suggestions with which management is usually confronted. In most active and growing companies, the requirements for capital for new investment projects outstrips the availability of capital. Choices must inevitably be made.

Choosing among projects is often a top-level strategic decision. All the financial manager can do is to provide an analytical framework within which that decision can be made. The problem confronting the decision-maker is that the investment decision must be made now even though the project selected will span a number of years. He must therefore reduce all projected cash outflows and inflows back to the present time. The technique used is called discounted cash flow. Under DCF the anticipated receipt of $1 next year is equivalent to receiving $0.909 today if the prevailing interest rate is 10%. In other words if we invested $0.909 today at 10% we would have $1 at the end of one year. The two techniques in DCF are:

1. to identify the net cash flows over the relevant years for competing projects, and
2. to establish the discount rate, usually the firm's cost of capital.

Example: The management of a company are considering investing in new wrapping equipment; the production manager has submitted details for two machines, either of which could do the job required. The cost savings (labour and power) on either machine are estimated to be $10,000 spread over a five year period. Since the prices of the two machines are identical, the production manager's conclusion is that there are no advantages to be gained from buying one over the other; the company should therefore purchase from Manufacturer X the manufacturer of the equipment being replaced.

However, the financial manager calls for a profile of the $10,000 cost savings to be incurred and is given the following figures:

Manufacturer X Savings: Year 1 $1,000, Year 2 $4,000, Year 3 $4,000 Year 4 $500, Year 5 $500

Manufacturer Y Savings: Year 1 $4,000, Year 2 $4,000, Year 3 $1,000, Year 4 $500, Year 5 $500.

The cost of the company's capital is 10%.

The following present values emerge (using discount tables):

	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
X Actual savings	$1,000	$4,000	$4,000	$ 500	$ 500	$10,000
Present value at 10%	$ 909	$3,304	$3,004	$ 341	$ 310	$ 7,868
Y Actual savings	$4,000	$4,000	$1,000	$ 500	$ 500	$10,000
Present value at 10%	$3,636	$3,304	$ 751	$ 341	$ 310	$ 8,342

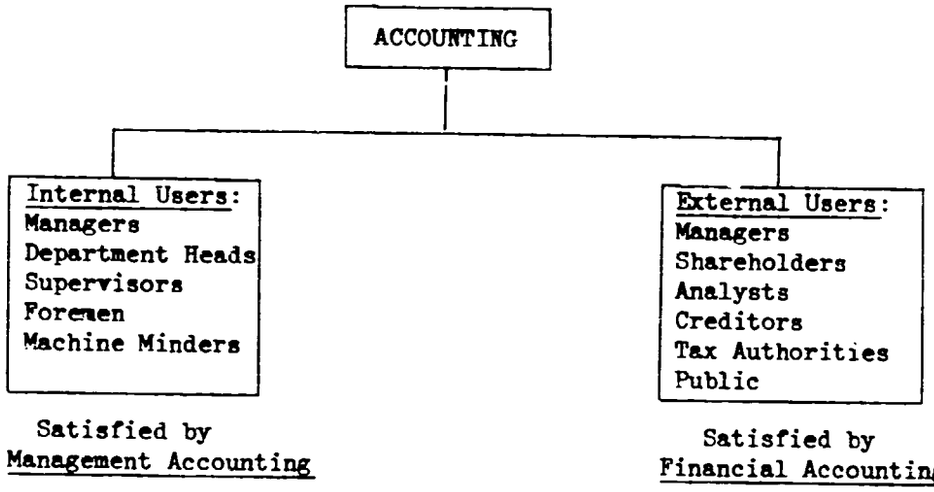
Manufacturer Y's machine has the higher value and, given that all other things are equal, is preferable to Manufacturer X. The difference between the two lies in the timing of the cash flows in years 1 and 3; Y's are faster than X's, thereby yielding a higher present value for Y.

There are, of course, many other techniques used to differentiate competing projects (and many other issues which must be considered by management before a final decision is made) but few match the conceptual rigour of the DCF group of methods.

10. Accounting and financial management. Accounting, which can be defined as the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by the users of information, is part of the overall financial management system. But it is a specialist part requiring specialist skills. Whatever other tasks the financial manager's job embraces, it does not, and should not, include those more properly undertaken by the accountant. It is advisable, therefore, to consider accounting as a separate discipline for the purposes of discussion and analysis.

11. Accounting for external and internal users. Accounting concerns itself with enterprise events which can be converted into financial terms. As a consequence, many events which cannot be so converted, but which are in many ways more important, for example a major clash of personalities and policies among the top echelons of the company leading to low staff morale, are omitted from financial statements and cost records compiled by the accountant. Arguably these unquantifiable events ultimately find expression in the financial statements when the loss of morale and poor performance are reflected in poor financial performance.

The information generated from the accounting system must be structured according to the use to which it is to be put. It is important, therefore, to identify the various groups of users of financial information. In broad terms, we can identify the following groups:



The external users are interested in global results: how much profit was made last year? Did the company generate sufficient funds internally to avoid large-scale borrowing? Has the company got sufficient liquid resources to meet short-term commitments? These needs are largely satisfied by an income statement, and a statement of financial statement, or balance sheet, both prepared at the end of each financial year.

Because of the need to keep all users adequately informed, and because few of them have access to the financial books and records of the company, the content and format of these statements are closely controlled by legislation and are usually subject to audit. A later paper will be devoted to the need for, and preparation of, external statements.

Management accounting, on the other hand, is not similarly hemmed in by statutory and professional regulations. It is informal and flexible. Managers and company decision-makers can receive almost any information they require from the internal accounting system.

12. What a manager does

A manager's prime responsibility is to ensure that things get done efficiently and on time. To do this he must know what is expected, that is, he must know the company's plans for the area for which he is responsible; he himself usually helps construct these plans.

First group of tasks: planning and co-ordination. Each manager must plan for the future. He must consider what products he can sell, and at what price; he must translate these sales aspirations into a production plan, that is, he must work out the raw material, labour and cash he will need to produce the volume of output he hopes to sell. He must consider the support services he will need to assist him, the salesmen, the advertising and marketing expertise, the accounting and financial advice. His time horizons may vary but he would almost certainly have a detailed plan for the next twelve months and a rough plan for the succeeding year or two. True, many events, a few of which he can control but most of which will be outside his control, will conspire to blow him off course. But without his predetermined plan he will be like a mariner without either compass or chart, he will have no idea where he is heading for.

The manager's planning processes are complicated if he is only one part of a bigger corporate exercise. Then the problem is to ensure that the individual managers' plans add together to make a realistic and practical proposition. Co-ordination is therefore a key role in the manager's planning activities. To repeat the example used earlier, a sales manager may plan for a 50% increase in units of Product A but the production manager knows that raw materials for Product A are in very short supply and will be either unobtainable or more expensive in the forthcoming year. Good co-ordination will help to overcome this type of obvious, but all too common, problem.

Second group of tasks: directing and control. A manager cannot sit back and wait for his staff and workers to follow the plan, nor does he do the job himself. He must allocate specific tasks to individuals and ensure that his instructions are obeyed. This forms the day-to-day part of the manager's life, a part which the experienced and skillful manager is hardly aware of fulfilling. He is assisted in his tasks of direction by receiving

information on current performance which allows him to trim the sails as necessary so that the goals of the company as set out in the plan are achieved as closely as possible.

The role of accounting information. To assist the manager in his two groups of tasks he needs information, lots of it. But the information must be useful: it must allow him to make decisions. The management accounting system generates much information which can help him make the correct decision. But three points of qualification should be noted:

1. the information must be structured in a meaningful way;
2. the manager must become familiar with the strengths and weaknesses of the information which his management accounting system is capable of generating;
3. accounting information forms only a part of the total package of information he needs - he must have access to newspapers, journals, media stories, conversations, economic and technological advice, and so on.

13. Where do costs come from?

As an introduction to later papers on management accounting practices, the remaining sections of this overview paper will consider the characteristics of the most usual types of costs incurred by a typical manufacturing company and how the information about such costs are gathered. As a background for the discussion it is assumed that the company manufactures timber shelved units for hi-fi equipment. Production involves the use of materials (chipboard, veneer and metal edging), which are changed in form by craftsmen. Use is also made of buildings, machinery and equipment. Payments have to be made to obtain these things and these are classified according to the nature of the item or service received, such as "material cost", "labour cost", and "overhead cost".

Costing systems are designed to facilitate the allocation or apportionment of expenditure to cost centres (the smallest unit of activity or area of responsibility for which costs are accumulated) or to products. Costs are allocated to products if the relationship is obvious, i.e. one unit consumes a certain amount of chipboard, veneer and metal trim, takes a certain number of hours to assemble by a certain grade of craftsman, and consumes a certain number of screws and hinges. These are called direct

costs. Other costs such as the heating and lighting in the workshop, depreciation of the machines, salaries of the administrative staff are called indirect costs and have to be apportioned by some given formula to the products. The cost of one shelved hi-fi unit would be stated thus:

1 timber shelved hi-fi unit	
Direct material - Chipboard	$10.00
Veneer	3.00
Metal Trim	2.00
	$15.00
Direct labour 1 1/2 hours at $5 per hour	7.50
PRIME COST	$22.50
Manufacturing overhead	2.50
Manufacturing cost	$25.00
Share of non-manufacturing overhead	5.00
TOTAL COST	$30.00

This type of cost structure will be examined closely in subsequent papers. The concern of this section is: how are the costs accumulated into such an orderly presentation?

Materials. A direct material is material that actually becomes part of the specific finished product, in this case, the hi-fi unit. It should be distinguished from supplies which are materials used in the workshop but not directly on each unit produced. Lubricating oils, screws, nails, glue are examples of supplies.

Materials must first be quantified then priced. The cost accounting system usually records the amount of raw material that is drawn from the stores for use in the assembly process. The amount is recorded on a stores requisition slip which shows both the quality and quantity of the material drawn. This slip is used not only to cost the individual units but to update the records for raw material stock which will eventually need replenishment.

The price per unit of raw material withdrawn can be determined in various ways. It may be the cost of the individual item if that item is sufficiently distinctive. If not, it may be determined by one of several stock valuation methods.

Labour. Direct labour is that part of the total labour cost which can be traced to, or otherwise identified with, the units of output produced. The higher the volume, the higher the labour cost. Typically, direct labour comprises those employees who are closest to the manufacturing or assembling process.

Again, direct labour must be measured in terms of time and price. The number of hours and minutes spent on a particular task can be recorded relatively easily: a time card is maintained for each direct labour employee, detailing the time spent by him on each unit worked on. It is a simple process to calculate the total time spent on each unit. By multiplying each hour worked by the rate of pay for the respective employee, this time information can be converted into money terms. Variations do exist; for example, some companies do not bother with identifying multiple rates of pay, they use a simple average.

Manufacturing overhead. This broad category of cost includes all costs associated with manufacturing other than direct material and direct labour. Examples are indirect labour of those employees associated, but not directly, with production, supplies, factory heating and lighting, power, machine maintenance and depreciation. Non-manufacturing overheads such as administrative costs, selling and distribution costs, and financial expenses are accumulated and allocated in the same manner.

Process costing

The system described above is known as job costing, appropriate where the units of output are sufficiently identifiable to pinpoint the direct material, and labour applied to each unit. Ships, civil engineering projects, turbines, items of furniture are among the many areas which lend themselves to job costing systems. But there are many areas where the items produced are so homogeneous that physical identification is impossible: refining, chemical processing and manufacturing activities where products are continuously produced in an unvarying mix are examples. In these cases, job costing is impossible to operate and another system called process costing is adopted. Process costing systems collect costs for all the products worked on during an accounting period and by dividing these total costs by the total number of units worked on during the same

period, the cost for each unit is determined. Again, this system of costing will be described in a later paper.

14. Costs relevant to Management Decisions

Decision-making is the essence of management. Managers are constantly making decisions. In many of their decisions they need financial information on costs. The skill of the management accountant, as opposed to the cost accountant, comes in presenting to management the costs relevant to the decision under consideration.

Management decisions can be split into two broad categories: routine and special. Routine decisions are concerned with the day-to-day operations of the enterprise: ensuring that the agreed volume of output is produced in the agreed manner, ironing out problems that arise with the supplies of raw materials or with the workers, in general encouraging his staff and workers to achieve the company's objectives in as efficient a manner as possible. For these tasks he needs much cost information, mostly of a routine nature which the cost accounting system is designed to produce.

Special decisions need special cost information that does not fall out easily from the cost accounting system. The management accountant must package the relevant cost information in a manner most appropriate for management to make their decision. There is no limit to the types of special decisions that have to be made in the course of business. Here are a few:

- Should we change our supplier and purchase a slightly inferior, but cheaper product?
- Should we buy-in a particular component and cease manufacturing it ourselves?
- Should we replace a piece of equipment by a more efficient, but expensive, model?
- Should we change our product mix and phase-out product XY?
- How far can we afford to drop our prices in order to capture more market share?

It is not possible to be dogmatic about which costs will be relevant (and which will be irrelevant) for any particular decision without knowing precisely the circumstances of the situation, together with the various alternatives which confront management. It is possible, however, to state that costs must be interpreted very carefully, that they may have to be "reshuffled" from the format in which they are initially produced by the cost accounting system, and that managers who do not fully understand how costs behave may be misled into making the wrong decision. As an example of misinterpretation (and of the deeper discussion on this subject that will follow in later papers) consider the following situation facing the management of the hi-fi cabinet workshop:

> Example: The cost of manufacturing one timber shelved hi-fi unit is $30. A customer offers to buy such a unit for $24. Management reject the offer on the grounds that they would incur a loss of $6 on such a deal.
>
> Perhaps management is right in refusing this offer (for example, the units are selling well for $30 so why should they sell one at $24?) but they have used the wrong reasons which, if these are not pointed out to them, may lead them to take a wrong, and damaging, decision in the future.
>
> Consider the cost information given on each hi-fi unit. Each unit's variable cost, that is the cost of making each individual unit, is $22.50. The balance of cost, namely $7.50, comprises costs which would largely be incurred whether or not one individual unit was made. These costs are overheads which are not directly associated with each unit of production and would not vary in any significant way if production volume increased or decreased by a few units. Indeed some of the overheads, such as factory rent and depreciation on plant, do not vary at all with volume. They are deemed to be fixed costs and would be incurred whether the workshop produced any units or not. It is therefore misleading for managers to think that each unit cost more than $22.50.

It follows, therefore, that if the company accepted the offer of $24, it would be better off by $1.50 ($24 less $22.50). That $1.50 would contribute towards meeting the burden of overheads. By not selling for $24 the company has lost this contribution. Unless managers understand the notion of contribution and variable and fixed costs, they may take the wrong decision. For instance when the market drops away and inventory builds up, managers may be very happy to accept $24 in order to realise the modest contribution for each unit sold - but only if they understand the nature of overheads.

Contribution and break-even. Again, this re-shuffling of costs can yield important information on how many units the enterprise must produce to cover all of its costs i.e. to make neither a profit nor a loss. For this calculation we use the unit contribution, that is the difference between its normal selling price, say $40.50, and the variable cost of manufacturing one unit, $22.50; the contribution is $18 per unit. Note that contribution is not the same as profit because the unit's share of manufacturing and non-manufacturing overheads has been eliminated from the cost calculation. Indeed, the term "contribution" signifies each unit's contribution to meeting the fixed overhead costs.

Example: Management of this workshop wish to know how many units they need to manufacture and sell in order to break-even. They estimate that their total fixed overhead (those costs that will be incurred whether or not the hi-fi units are made) will be $27,000.

The calculation is based on the equation:

$$\text{Break-even number of units} = \frac{\text{Total fixed costs}}{\text{Contribution per unit}}$$

$$= \frac{\$27,000}{\$18}$$

$$= \underline{1,500}$$

15. Summary of industrial accounting sections

Management accounting serves management in a number of ways. Firstly, it is a primary source of information to assist management in planning. The cost accounting system is a databank with a vast quantity of details about past performance so essential for constructing forecasts for the future. Second, it provides management with skilled staff to assist them in interpreting the accounting, and non-accounting, numbers produced. Thirdly, management accounting information prevades the whole company and therefore acts as a good communicator. It does this by involving many people in the planning process and then by informing them of actual operating performance by means of feedback control reports.

The overriding criteria for management accounting information are relevance and timeliness. Management must be provided with the information they want at the time they want it. Late information is almost useless; irrelevant information is not only useless but could also be damaging. Contrast these criteria with the sole criterion of verifiability which operates in financial accounting. The contrast can be understood when one considers the internal versus external roles of the two accounting systems. Outsiders rely on the financial accounting information issued by a company; it must therefore be able to be verified by experts and be free from deliberate bias. It takes time to prepare and publish. Internal information is not similarly constrained.

The limitations of management accounting data must be recognised. Managers cannot expect to get all the information they want to make correct decisions. They can go only so far in eliminating uncertainty. Accounting information helps in this process but it is subject to approximations and varying degrees of accuracy. For example, the amount of overheads allocated to each timber shelved hi-fi unit is only an approximation and must be interpreted as such. Internal users must also understand the flexibility of accounting data: the information produced by the cost system can be reworked for a multiplicity of uses.

16. Concluding remark

This overview of what are essentially two disciplines has taken a highly selective and superficial path through some difficult terrain.

It has mapped out only the principal highways and the most obvious landmarks. Much remains to be explored. But the issues and problem areas discussed in this paper should be sufficient to alert managers to the necessity of their enterprises getting to grips with the analytical tools of financial management and industrial accounting. These tools do not have to be complex. Later papers on individual topics will go far to show that managers need only a fair measure of common sense and a logical way of thinking to cope with the concepts and tools rather than superior mathematical skills or professional training.

APPENDIX

An example of working capital forecast

Two brothers wish to go into partnership to manufacture and sell a gadget. They have only 30,000 LC (Local Currency) between them but the local development corporation has indicated that it may support the venture provided the two brothers can present a forecast of working capital requirements together with other capital requirements for the first six months of trading (January to June).

The following information is available:

1. A suitable factory has been found which will cost 30,000 LC but the present owners are prepared to offer it for 15,000 LC immediate cash payment and a mortgage on the balance with interest payable at the rate of 8% per annum on the last day of every month.

2. Plant and machinery, and other factory equipment costing 18,000 LC must be acquired and paid for in January.

3. Each gadget made will cost 4 LC, costs comprising 2.50 LC for factory wages and 1.50 LC for materials. Selling price is expected to be 8 LC and expected sales are as follows, in units:

January	February	March	April	May	June
NIL	1,500	1,800	1,800	2,000	2,000.

Ten percent of all sales will be for cash and the balance will be sold to customers for settlement in the month following delivery of the gadgets.

4. Materials, production overheads and administration overheads will be acquired from creditors who will expect payment in the month following supply of the goods and services. Production overheads are likely to be incurred at the rate of 1,500 LC per month and administrative overheads also at the rate of 1,500 LC per month.

5. Sufficient materials will be purchased in January to manufacture 1,500 gadgets and to maintain a level of raw material inventory of 2,000 LC. The inventory of finished gadgets will be maintained at 1,500 during the first six months; therefore the production level for any month is that of the month's sales.

6. All other expenses are paid in the month in which they are incurred.

7. An emergency cover of 3,000 LC is to be included in any forecast of working capital.

8. Advertising costs: to be paid in January 2,200 LC; February and March 800 LC per month; 500 LC per month thereafter.

9. Selling and distribution costs are as follows: to be paid in March 800 LC, in April and May 1,000 LC per month, and in June 900 LC. Nothing will be outstanding at the end of June.

A. Schedule of Cash Payments for Operations in LC

	January	February	March	April	May	June	Outstanding
Factory wages	7,500(1)	3,750(2)	4,500	4,500	5,000	5,000	
Materials	-	6,500(3)	2,250	2,700	2,700	3,000	3,000
Production overhead	-	1,500	1,500	1,500	1,500	1,500	1,500
Administration overheads	-	1,500	1,500	1,500	1,500	1,500	1,500
Advertising	2,200	800	800	500	500	500	
Interest	100	100	100	100	100	100	
Selling and distribution	-	-	800	1,000	1,000	900	
	9,800	14,150	11,450	11,800	12,300	12,500	

Appendix (Contd)

Working notes:

(1) Wages for January:

Units for inventory	1,500	
Units for sale in February	1,500	
	3,000 x 2.50 LC =	7,500 LC

(2) Wages for February: Units for sale and so on for the following months — 1,500 x 2.50 LC = 3,750 LC

(3) Materials for February: Bought and consumed in January:

Produced for inventory	1,500	
Produced for sale in February	1,500	
	3,000 x 1.50 LC =	4,500
Inventory		2,000
		6,500 LC

B. Cash from Sales in LC

	January	February	March	April	May	June	Receivable
Cash sales	-	1,200	1,440	1,440	1,600	1,600	
Cash from Accounts Receivable	-	-	10,800	12,960	12,960	14,400	14,400
	-	1,200	12,240	14,400	14,560	16,000	

C. Statement of Cash Receipts and Payments in LC

	Payments	Receipts	Balances Overspent	Balances In-Hand	Cumulative Balance Overspent
January	9,800	-	9,800		9,800
February	14,150	1,200	12,950		22,750
March	11,450	12,240		790	21,960
April	11,800	14,400		2,600	19,360
May	12,300	14,560		2,260	17,100
June	12,500	16,000		3,500	13,600

Note that the largest estimated negative monthly balance is 22,750 LC in February. This is the amount of the working capital required to be provided for in the initial six months' trading.

D. Capital requirement in LC

Cash for factory	15,000
Cash for plant and equipment	18,000
Cash for working capital	22,750
Cash for emergency cover	3,000
	58,750

Provision

Two brothers	30,000
Local development corporation	28,750
	58,750