

Understanding and Calculating Depreciation

Business Information Factsheet
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Introduction

Any equipment owned by a business is subject to wear and tear that eventually reduces its value. This must be accounted for as a cost to the business, and is known as the depreciation charge.

This factsheet explains what depreciation is and how it is treated. It outlines the types of assets on which depreciation is charged and discusses the different ways of calculating depreciation. It also introduces the ideas of capital allowances and capital replacement budgeting.

What is depreciation?

Depreciation is an accounting allowance for the wear and tear of fixed assets. When a business buys equipment, the payment is not categorised as an expense, but as a fixed asset. Fixed assets include any assets that are bought for a business that it expects to use for more than one year, such as a computer, vehicle or office furniture.

Equipment, machinery and vehicles can all be used repeatedly until they wear out. The cost of using each asset is spread over its expected life by charging a proportion of the purchase cost to the business each year. This charge is known as the depreciation charge. It is recorded as an expense in the profit and loss account.

How is depreciation accounted for?

Depreciation charges appear in two of the main financial statements:

- **Profit and loss account** - In the profit and loss account, the depreciation charge appears as a fixed cost (or overhead).
- **Balance sheet** - The value of an item of capital equipment purchased is shown as a fixed asset on the balance sheet. The initial value is the cost; this value is then reduced each year in line with the depreciation charged to the profit and loss account.

Do depreciation charges apply to all business assets?

Depreciation charges apply mainly to capital assets that a business has bought with cash, a bank loan or by hire purchase (HP). The treatment of leased equipment depends on the type of lease:

- **Finance leases** - With a finance lease, the accounting treatment for the asset is the same as if the business paid cash for it. In other words, the purchase price is entered on the balance sheet and the depreciation is factored into the profit and loss account.

- **Operating leases** - An operating lease (such as for a car on a contract hire agreement) is more like a rental agreement: the business rents the asset and will return it to the owner at the end of the lease period. In this case, the asset should not be entered onto the business balance sheet or charge depreciation on it. Instead, the lease repayments are allowed as an operating expense in the profit and loss account.

Depreciation does not apply to land, as land has a limitless useful life, and is more likely to increase in value rather than depreciate.

Calculating depreciation

To calculate depreciation, the expected useful life of the asset needs to be estimated, as well as its residual value. The residual value is the value of the asset at the end of its useful life and, in practice, the residual value is often zero.

Calculating depreciation is relatively straightforward. If a business has few capital assets, depreciation will not make much difference to its costs or forecasts. But for some firms - especially manufacturing firms and those using a lot of capital equipment - it is important to account for depreciation accurately and to include it in forecasts.

The more accurately a business can reflect depreciation in its budget, the more accurately it will be able to cost its product or service.

There are two main methods for calculating depreciation: straight-line and reducing balance.

Straight-line depreciation

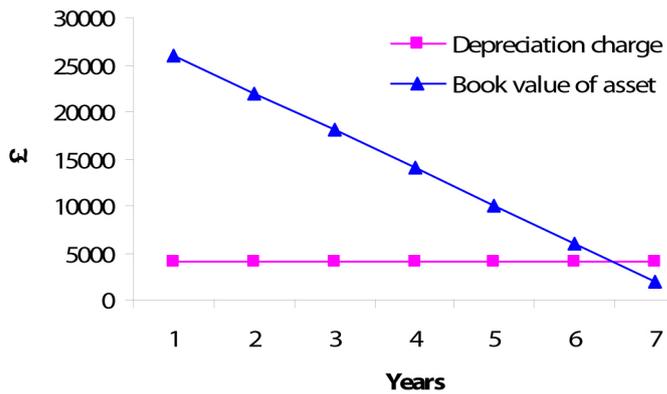
In the straight-line method, a constant annual depreciation charge is made over the asset's life. In other words, the asset's cost is written off in equal amounts over the course of its working life.

To calculate straight-line depreciation, take the original value of the asset, subtract its estimated final residual value, and divide this amount by the estimated life of the asset.

$$\text{Annual depreciation} = \frac{\text{Original cost} - \text{Residual value}}{\text{Estimated life (years)}}$$

For example: A new piece of equipment is bought for £30,000. It is estimated that the equipment will last for seven years, after which the business will sell it for £2,000. The total amount of depreciation is therefore £28,000, and, as the equipment is expected to last for seven years, the depreciation charge is £4,000 per year.

The amount of depreciation, and the value of the asset, will look like this over the asset's life:



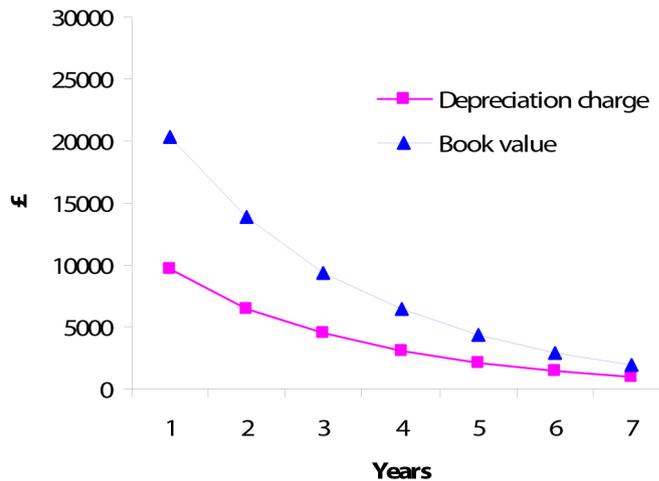
Reducing balance depreciation

The reducing balance method assumes that depreciation will be higher in the early years of an asset's life than in its later years. This gives a truer reflection of the real value of the equipment. Most assets - such as equipment and vehicles - work more efficiently when they are new.

To calculate the depreciation charge using this method, a constant percentage rate is applied to the written down value of the asset every year. The amount of depreciation charged annually will then reduce over the course of the asset's life.

Using the same example as before, the equipment purchased for £30,000 is charged at a 32% depreciation rate over the seven years of its expected life (see below for how the 32% figure is calculated). The table and graph below show how this set percentage reduces the annual depreciation figure charged over the course of the equipment's life.

Year	Depreciation charge	Residual value
1	(£30,000 x 32%) 9,600	20,400
2	(£20,400 x 32%) 6,528	13,872
3	(£13,872 x 32%) 4,439	9,433
4	(£9,433 x 32%) 3,018	6,415
5	(£6,415 x 32%) 2,052	4,363
6	(£4,363 x 32%) 1,396	2,967
7	(£2,967 x 32%) 949	2,018



The depreciation charge in the reducing balance method is much higher in the early years, but the same amount of total depreciation is charged over the asset's life.

The percentage rate is calculated using the following equation:

$$r = 100 - \left(n \sqrt[n]{\frac{\text{residual value}}{\text{original cost}}} \times 100 \right)$$

Where 'r' represents the constant percentage rate of depreciation and 'n' represents the expected life of the asset in years.

Using the figures from the previous example, the constant percentage rate is:

$$r = 100 - \left(7 \sqrt[7]{\frac{2,000}{30,000}} \times 100 \right)$$

$$= 100 - 68$$

$$= 32\%$$

Choosing the method and estimating the asset life

A business can choose to use any method of depreciation as long as it falls within accounting standards. However, the business must have clear policies on depreciation that it follows consistently and discloses in its annual financial statements.

Typical asset lives used by many businesses are:

Type of asset	Depreciation period
Computer equipment and software	3 to 5 years
Furniture	4 to 7 years
Cars	2 to 4 years
Plant and machinery	5 to 10 years

The choice of time period over which assets are depreciated and the method of depreciation is entirely up to the business, but the choice can have quite an impact on reported profits.

For example, if a business invests £30,000 in computer equipment and software and depreciates this on a straight-line basis with no expected residual value, the annual depreciation charge would be £10,000 if the chosen depreciation period is three years. Increasing this period to five years means the annual charge over that period is just £6,000, but the business would have to charge depreciation in the profit and loss account for an extra two years.

Revaluation option

Businesses that follow the general accounting standard in the UK can decide to revalue certain fixed assets and charge depreciation on the revalued amount. Go to www.frc.org.uk/Our-Work/Publications/Accounting-and-Reporting-Policy/FRS-102-The-Financial-Reporting-Standard-applicab.pdf for more information.

Limitations

Understanding how to calculate depreciation will help ensure that a business is recovering the costs of its capital assets. However:

- Maintenance costs are likely to rise as an asset ages and functions less efficiently. These costs need to be included as a separate item in the financial forecasts.
- Depreciation calculations will not show whether it is worth purchasing a particular capital asset. Other techniques, such as payback and discounted cash flow, can help with this.

Depreciation versus capital allowances

Depreciation is not an allowable expense for tax purposes. However, tax relief can be claimed on the purchase of business assets through capital allowances. Capital allowances enable a business to write off the cost of buying and using assets against taxable profit. Go to www.gov.uk/capital-allowances for more information.

When calculating taxable profit, the cost of depreciation for that year needs to be added back into the profit figure in the accounts. The capital allowances the business is claiming for that tax year are deducted to calculate the adjusted taxable profit.

The main legislation covering capital allowances is detailed in the Capital Allowances Act 2001, but this area of law is regularly amended. The current rules should be reviewed regularly, particularly if a business is relying on the tax relief from capital allowances to help finance the purchase of an asset. An accountant or HM Revenue & Customs (HMRC) can advise as to which purchases qualify. See BIF243, An Introduction to Tax Allowances for Capital Expenditure, for further information.

Depreciation and capital replacement budgeting

Making allowances for depreciation does not involve any transfer of money or build-up of reserves to replace equipment in the future. If possible, a cash sum should be put aside at least equal to the annual depreciation (preferably higher to allow for inflation) so that the business has the cash available to replace its equipment when it needs to.

Hints and tips

- When estimating the useful life of an asset, possible changes in technology and market requirements should be considered.
- It can be difficult to estimate the residual value of an asset. Where the value is likely to be small relative to the cost, it is best to estimate it as zero.
- Accountants and business advisers can help with calculating the depreciation rates to use in a business.
- The more accurately depreciation can be reflected in a budget, the more precisely a business will be able to cost its product or service.

Further information

BIF007 A Guide to Understanding Balance Sheets

BIF008 A Guide to Understanding Profit and Loss Accounts

BIF038 Choosing and Using an Accountant

BIF054 A Guide to Costing and Pricing a Product or Service

BIF058 How to Forecast Cash Flow

BIF069 A Guide to Preparing and Submitting Company Accounts to Companies House

BIF243 An Introduction to Tax Allowances for Capital Expenditure

BIF260 An Introduction to Preparing a Budget

Useful contacts

The Institute of Chartered Accountants in England and Wales (ICAEW) is a global professional body representing chartered accountants. It has a searchable directory of accountants on its website.

Tel: (020) 7920 8100

Website: www.icaew.com

The Institute of Chartered Accountants of Scotland (ICAS) is a global professional body representing chartered accountants. Its website includes a directory of chartered accountants in Scotland.

Tel: (0131) 347 0100

Website: www.icas.org.uk

Chartered Accountants Ireland is a membership organisation representing qualified accountants in Ireland. It has a directory of firms and members on its website.

Tel: (028) 9043 5840 (Northern Ireland office)

Website: www.charteredaccountants.ie

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