Interested Parties

Benefit schemes will only be set up if all parties concerned want them. Understanding the main parties' motivations is therefore key. In the U these parties are

The state
Employers
Individuals
Facilitators

We will look at each of their motivations in turn.

The State

The state provides benefits and shapes the landscape for their provision
Its key motivation is to stay in power by ensuring

- People able to remove it from power are pleased with it.
- People displeased with it are unable to remove it from power.

Democracies concentrate on the former, in which benefits play a key role
The main factors the state takes into account are

- What people want
  - Safety net for the needy
  - Rewards for good workers
- Political beliefs
  - Paternalism
- Macroeconomic effect
- Social goals
  - Limit dependancy
  - Maximise social inclusion
- Value for money
  - Minimise costs
  - Simple administration
- Financial planning
  - Stable, predictable costs
  - Take account of socioeconomic trends

Employers

An employer may have to offer certain benefits by law. Otherwise, they will want to offer benefits that help the aims of the business. For example, offering the right benefits (with a low cost and high percieved valu allows businesses to attract and retain staff cheaply. The main factors employers take into account are

- What employees want
  - Safety net for the needy
  - Rewards for good workers
  - State provision
  - Competitor provision
  - Supportive attitude
- Political beliefs
  - Paternalism
  - Aims of the company
- Business needs
  - Image of the company
  - Competitors image
  - Industrial relations
  - Mergers / downsizing / reorganisation
- Value for money
  - Minimise costs
  - Simple administration
  - Tax efficient
  - Freedom from legislation
- Financial planning
  - Stable, predictable costs
  - Flexability of payments

Individuals

An individual may be forced to finance benefits by the state or employers. Otherwise, they will want to maximise the percieved value of what they reciev This involves balancing long term benefits against short term cash and protection against unlikely events such as death / illness. The main factors individuals take into account are

- What they need or desire
  - Compensation for their activities
  - Maintain standard of living
    - Net replacement ratio
    - Changing needs in retirement
  - Safety net on illness or death
  - What the state provides
  - What employers provide
- Value for money
  - Minimise costs
  - Simple to administer
  - Simple to understand
  - Tax efficient
- Financial planning
  - Stable, predictable cost
  - Stable, predictable benefit
  - Flexability
  - Security

Facilitators

The facilitators goals are to perform their duties effectively and to collect the rewards for doing so. Groups acting as facilitators include

- Trustees
- Investment managers
- Actuaries
- Administrators
- Regulators
- Tax officials
- Accountants
- Lawyers
- Insurance companies
- etc.

We will consider the duties of some of these groups later.

Risks

A key, typically unstated, influence on motivation is the attitude to risk. Because of the gap between promising and providing benefits, benefit provisi carries inherent risk, which finds form in uncertain levels and timings of costs for sponsors or benefits for recipients. It is important to understand the risks so one can assign, manage or mitigate them. The main risks are

Risks due to design
- Inadequate benefits (misunderstood or changing needs)
- Benefits not appreciated (money spent wasted)
- Unexpected benefit changes (usually by state)
- Exercise of employee options
- Bad models / parameters / data (funding projections incorrect)

Risks due to the market
- Investment risk
- Inflation risk
- Guarantee risk (annuity purchase terms worsening)
- Illiquid assets (benefits at inappropriate time or lost value)
- Market value risk (converting pension back to cash)

Risks due to funding
- Employers underfunding
- Employers insolvency
- Unaffordable contributions
- Unexpected costs (such as fines)
- Overfunding (inefficient money use, possible fines or extra taxes)

Risks due to management
- Sponsor mismanagement / Bad advice
- Fraud / Bad integrity

Scheme Design

There are a number of choices to be made when arranging benefit provisio
We will look at these choices in the abstract, to gain an appreciation fo
the variety of solutions and to give a vocabulary for discussing the matte
We will then look at how the state, employers and individuals approac
benefit provision, specifically with regards to pensions in the UK.

Arranging Provision

The state and employers can use several methods to ensure adequate benefit provisio

Providing benefits

This is the most expensive but most valuable method. Care must be taken to avoid excessive costs that it is hard to finance.

Compelling benefit provision

Methods include forcing individuals or employers to make minimum contributions, and forcing employers to offer a minimum level of benefits.

Encouraging benefit provision

Methods include cash incentives, benefit enhancement, tax breaks, offering guarantees to mitigate risk and providing vehicles to fund benefit provisio
There is usually an upper limit on the benefits, to stop abuse of the system

Education

This ranges from running campaigns to encourage provision to ensuring appropriate parties have access to the relevant information

Regulating benefit provision

The state may regulate to ensure that appropriate benefits are provided, and that the parties are capable of providing benefits they have promised. This includes requiring advanced funding at a sufficiently high level, measures in case of insolvency and disclosure of information.

Types of Benefits

Benefits fall into the following broad catagories

Retirement and death

This includes pensions, survivor benefits, lump sums and nursing care.

Temporary absence

This includes paid holiday, sickness and maternity leave.

Permanent absence or disability

This includes pension, survivor benefits, salary continuation, unemploymen income and termination indemnity.

Family support

This includes birth grants, creche facilities, family income support and scholarships.

Subsidised goods and services

This includes subsidised healthcare (such as dental or optical), cars, parkin food, housing and leisure facilities, legal and financial advisors and loans.

Savings

This includes share schemes and profit sharing.

Types of Pensions

The most valuable benefits that are commonly provided are pensions. They are usually provided in one of the following forms

Flat rate

The same fixed pension is paid to all members

Means tested

Pensions are paid appropriate to a members financial status

Defined benefit

The formula for the amount of pension is predefined, typically a multiple some salary definition times service, sometimes with offsets for other benefits

Defined contribution

A fixed contribution is paid into the scheme and invested. When the member retires, their invested funds are used to buy a pension at the market rate.

Hybrid

A scheme offering the better of defined benefit and defined contribution benefits or a scheme offering elements of both.

Scheme Design

When arranging benefit provision, we must resolve the following issues.

Eligability

Who is entitled to which benefits? Factors could include age, sex, service, job, etc.

Benefit triggers

What events cause benefit payouts? Different events may give different benefi

In a pension scheme, NRA and ages at which benefits are unreduced are key
Other areas are early and late retirement, and death and ill health benefits.

Benefit amounts

When benefits are triggered, what do members actually recieve?
This includes the overall amount (predetermined or depending on contribution value
the form of provision, the timing of provision, any increases, member
options regarding the benefits and what triggers benefit changes.

In a DB scheme, the key areas are accrual, salary (definition and averaging
service (dealing with incomplete years) and adjustments for state benefits.

Residual benefits

What benefits does the member get if they leave, voluntarily or involuntarily?

Financing

How is the responsibility for financing the benefits split between the parties?

In a pension scheme, balance of cost is usual, as paying a fixed proporti
of salary ensures an individual is able to pay.

Benefit Design Consideration

When arranging benefit provision, we must ensure the main parties goals are met. In addition, there are a number of practical considerations.

Current Position

The current position regarding benefit provision will have a big impact on future provision in terms of expectation, transitional arrangements and budgetting.

Experience / Expertise

The availability of experience or expertise will make it easier to offer certain benefits.

Perception

Benefit provision should not only be suitable, but be perceived to be suitable.

Additional requirements

There are often legal, tax, administrative, etc. requirements when setting up benefit provision that need to be taken into account.

Funding Considerations

The money required to provide benefits is about the same regardless of when it is pai
There is therefore a great deal of scope to vary the timing of payments.
The timing chosen depends on a number of secondary factors

Security	meeting benefits in all circumstances, including insolvency, etc.
Opportunity Cost	the cost to the company of financing instead of doing something el
Stability	contribution rates that are not distorted by fluctuations in experien
Durability	stable contributions as the membership profile changes
Flexibility	ability to vary contributions according to need
Realism	contributions match accrual - useful for accounting
Liquidity	how much cash needs to be availiable at short notice

Funding Methods

Typical methods of funding include the following

Pay as you go - The sponsor makes payments as each tranche of benefit becomes du
It is good for opportunity cost, but bad for all other criteria.

Book reserving - This is PAYG, but funds are notionally set aside to pay the benefits

Smoothed PAYG - This is PAYG, but there is an active fund for irregular benefits.

Terminal funding - The sponsor fully funds the benefit when it starts to be paid.
This is a marginally less extreme version of PAYG.

Just in time - The sponsor fully funds the benefit at the last possible moment.
This may be an external event such as insolvency or sale of the employer.

Regular contributions - The sponsor contributes enough that the assets equal the expected value of the benefits promised so far. Different methods of calculatin this value and the corresponding contribution level lead to different metho

Entry age	contributions over working lifetime, joined at entry age
Attained age	contributions over working lifetime, joined at current date.
Projected unit	contributions over next year, salary at retirement
Current unit	contributions over next year, salary now

General average premium - At scheme onset, the contribution rate is chosen to be that needed to fully fund it over the life of the scheme.

Lump sum in advance - The sponsor fully funds the benefit when the benefit is accrued. This has the highest security and opportunity cost

Regular Contributions

When considering regular contributions, there are three key values

Actuarial liability	The expected value of assets to cover the promised benefits
Standard contribution rate	The rate to cover future benefit accrual if assets = AL
Modified contribution rate	The rate to cover future benefit accrual if assets ≠ AL (equals SCR + variation from spreading surplus / deficit

For the four methods mentioned, these are calculated as follows

Entry age

$$AL = \text{present value of all benefits} - SCR \times \text{present value of future earnings.}$$
$$SCR = \frac{\text{Value of benefits at entry age}}{\text{Value of future salary at entry age}}$$

Attained age

$$AL = \text{present value of accrued benefits}$$
$$SCR = \frac{\text{Present value of future benefits}}{\text{Present value of future salary}}$$

Projected unit

$$AL = \text{present value of accrued benefits}$$
$$SCR = \frac{\text{Present value of benefit accrued this year}}{\text{Present value of salary paid this year}}$$

Current unit

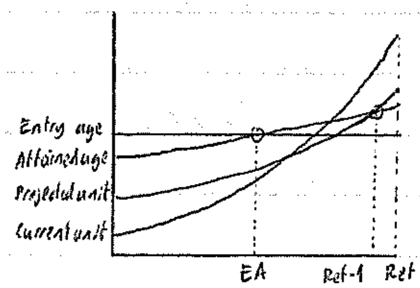
$$AL = \text{present value of accrued benefits assuming FPS is current salary}$$
$$SCR = \frac{\text{Present value of benefits accrued this year assuming FPS is current salary} + \text{AL increase due to salary increase}}{\text{Present value of salary paid this year}}$$

In general, the SCR is higher for older members as assets cannot be invested as long. Given a stable scheme, methods with a low AL have a high SCR to compensate for the lower interest from the AL. If a stable, fully funded scheme changes funding method, the old SCR will be between the MCR and the new SCR.

If the scheme shares the cost of funding with members, care should be taken with the CU and PU methods as these are unfair to members.

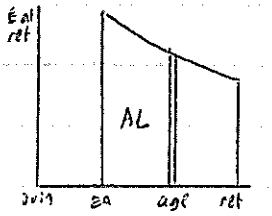
Regular Contribution Graphs

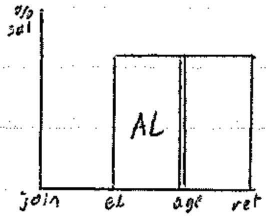
One way to illustrate the differences between methods is to look at graphs.
The following shows how SCR varies with age for the four methods



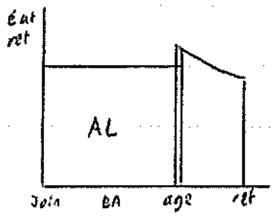
The following show how an individuals actuarial liability builds up during their lifeti

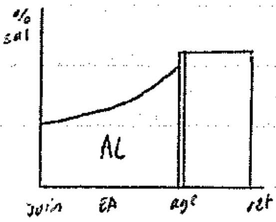
Entry age



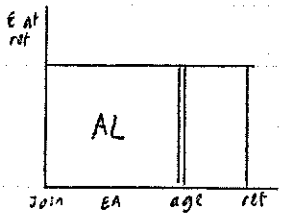


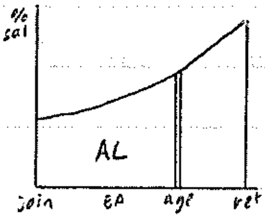
Attained age



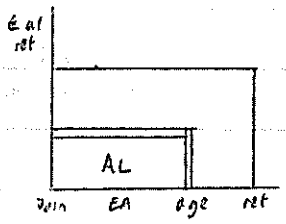


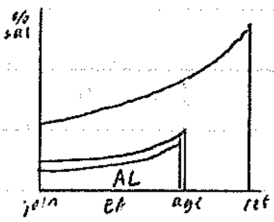
Projected unit





Current unit





Investment

A prefunded scheme will need to invest its assets until they are needed. The choice of where to invest will depend on the main parties goals. Beneficiaries want assurances that their benefits will be paid in full and on tim

Security
Matching
Liquidity

Sponsors will want to minimise the impact pensions have on their business

High returns
Stable, predictable cashflows
Tax and expense efficient

The choice will further depend on

Liability profile and expected cashflow
Size of the fund
Funding position
Who has the investment risk
Legislative or scheme specific constraints
Availability of suitable assets.

In general, pension schemes are one of the longest term investors in the market. They can therefore deal well with short term volitility, and should exploit this to get higher returns.

Investment Products

Possible investment products include

Shares - Inflation and salary linked, but volatile with a low income strea
Bonds - Secure non-inflation linked with low returns
IL Bonds - Secure inflation linked with low returns
Property - Unmarketable long term inflation and salary linked investment
Cash - Short term frictional investment

Annuities - Remove longevity risk, but benefits may be hard to match
Insurance - Removes liquidity requirement in day-to-day business
Managed Fund - Allows diversification for medium level schemes
Derivative - Used mainly for overlays when changing strategy.

There are also some specialist pension scheme vehicles

Insured scheme - a scheme where the only long term investments are insurance policies. These are usually administered by the insurance company and smaller than self administered schemes.
With profit deferred annuities - These are standard with-profits arrangements that may buy annuities, but are usually arranged to make the cash option more valuable.
Deposit administration - This is a contract giving a guaranteed rate plus a bonus if investments do well, funding for cash.

These vehicles are not usually sold on the basis of their investment return, but the bundled services giving an all-in-one package. This makes them suitable for small schemes.

State Provision

The state has a free hand when deciding how to arrange benefit provision. However, it does suffer from a number of logistical constraints with direct provision.

- It needs to arrange things so people can't take advantage of it. For example, final salary schemes would not work as companies could boost salaries in the last year to increase pension provision.
- Its presence in the investment market would distort that market. To avoid this, the main means of funding is likely to be PAYG. (indeed, only states have the financial robustness to use PAYG).
- When doing financial planning, it must include all potential claimants, including ones who have gone missing, there are no records for, etc.
- If doing means testing, it needs appropriate data for each potential claimant

UK State Provision

The state provides benefits as consolidated in Pension Schemes Act 1993. They are funded on a PAYG basis from National insurance contributions, the level of which is set by the Government Actuaries Department every five years.
State pensions are paid from SPA which is 65 for men and 60 increasing to 65 between 2010 and 2020 for females. It consists of

BSP A flat rate pension for all who have contributed to NI for 90% of their working life from 16 to SPA, decreased proportionally for lower contributions. If you are married, and your spouse has no BSP, you get married BSP and your spouse gets single on your death. BSP increases according to the government, typically in line with RPI.

SERPS This is a revalued (NAE) career average scheme based on upper band earnings. It was accrued between 6/4/78 and 6/4/02 by all except self-employed and married women who elected reduced NI conts. It provides

Retire pre 5/4/98	1.25% total revalued UBE
6/4/98 to 6/4/00	25% average UBE
6/4/00 to 6/4/10	decreasing to...
6/4/10 and later	20% average UBE for post 86, 25% average UBE for pre 86

SERPS increases according to the government, typically in line with RPI. It includes a spouses benefit of 50%.

S2P This replaced SERPS in 6/4/02, giving different accrual

LEL to LET	40%	
LET to UET (=3LET-2LEL)	10%	May be removed
UET to UEL	20%	

MIG / State pension credit The minimum income guarantee was introduced in April 1999, replaced by the state pension credit in April 2003. This is

Guarantee credit - Minimum income guarantee
Savings credit - Boosts earnings for people with a certain level of earnings

Employer Provision

Employer provision depends on what the state does in terms of compulsion, incentives, regulation and benefits provision. In the UK, their role is usually one of

- Providing benefits
- Subsidising benefit provision
- Providing a vehicle

Employers usually want to target benefits at their more valuable employees. This means that DB, DC or hybrid schemes with service and salary links are usual. As employers don't have the permanence of a state, prefunding is usual and may be mandatory.

UK Employer Provision

In the UK, employers with more than five employees must offer access to a suitable pension scheme. This can either be an occupational pension scheme, or one for individuals (typically a stakeholder scheme).

By designing the occupational pension scheme along certain lines, you can make it approved, and gain considerable tax advantages. Going outside these bounds means the scheme is unapproved - this is typically done only to give sufficiently high pensions to high earners.

The tax position of the various options is as follows

	Approved	FURBS (funded)	UURBS (unfunded)
Contributions			
Employers conts taxable	No - Business expense	No - Business expense	
Employees conts taxable	No	Yes	
Conts subject to NI	No	Yes - Benefit in kind	
Investment			
Inv. income taxable	No - except corp. tax	Yes	
Capital growth taxable	No	Yes	
Benefits			
Pension income taxable	as income	as income	as income
Lump sum taxable	No	No	as income
Lump sum DBR taxable	No	No	No
Refund of conts taxable	at 20%	at 20%	

Recently SURBS - unfunded pensions secured against company assets - have become popular as a result of changes to inland revenue rules.

Approved Schemes

To be approved, schemes must hold their assets in irrevocable trust, must provide certain benefits, but must not exceed Inland Revenue limits.

To gain approval, employers apply to the Inland Revenue Savings, Pensions, Share Schemes (IRSPSS). If certain restrictive conditions are met, the IRSPSS is required to grant mandatory approval. However, it has the power to relax conditions and grant discretionary approval, and most schemes follow this path.

By gaining approval, the scheme comes under the power of the Occupational Pensions Regulatory Authority (OPRA). This has a number of powers, including

- Requirement to be informed of material problems
- Power to appoint, suspend, prohibit or disqualify trustees
- Impose schedules of contributions where employers and trustees can't agree
- Impose certain conditions on companies or individuals whos actions might otherwise cause problems with the scheme

By gaining approval, the scheme comes under the power of the Pension Protection Fund (PPF). This guarantees 90% of benefits up to a cap in event of insolvency. [LPI 5% revaluation in deferment, 0% escalation on pre97, LPI 2.5% escalation on post97] It is funded by a levy on other pension schemes under its power.

Finally, by gaining approval, the scheme undertakes a number of funding commitments. These are detailed in Day-to-Day running.

Trust Law

If funds are held in irrevocable trust, they are governed by trust law.
A trust deed will set out the various parties and their key powers and duti
The areas a trust deed covers include the following

Financing - employer, consultative or trustee only
Investment - trustee only. Includes choice of strategy, managers and SIP.
Administration - trustee proceedings, records, audits, expenses and advisor appointment
Benefit Aug" - discretionary for employers or trustees. May require extra contributions
Transfers - acceptance into and payments from the scheme

Trustee change - employer can usually appoint / remove trustees. 1/3 must be member nomin
Amendment - employer can usually change, subject to section 67 of Pensions Act 19
which requires members consent or a guarantee from the actuary that
members will not be worse off on accrued benefits.
Windup - employers usually and trustees always have the power to wind up the scheme

A set of rules will cover how the scheme is run, including benefits, eligability, contributions and where trustees have discression

Approved Scheme Design

Schemes must obey the following restrictions to get approval.

Eligability - Employment law prohibits direct or indirect sex discrimination.
Age or race discrimination may yet be brought into force.

Salary - Final remuneration (FR) is subject to an earnings cap.

Pension - The benefit, including pension in respect of tax free cash sums, may n[ot] exceed the maximum allowed pension, increased by 3LPI each yea[r].
The maximum allowed pension is calculated at retirement and is the lessor [of] 1/30.FR.service and 2/3.FR, less other tax-approved non-state pensions, all collared at 1/60.FR. (Pre NRA service capped at 40).

Increases - At least LPI5 for post 97 and LPI2.5 for post 05.

TFCS - This cannot exceed the greater of 2.25 initial pension including AVCs and 3/80.FR. (Pre NRA service capped at 40)

Ret Age - NRA must be 60-75 and the same for both males and females.
Members can early retire at 50 at the earliest, and must recieve at least the actuarial equivalent of their deferred pension.

Death - Before retirement, a maximum of 2/3.FR. prospective service can be pai[d] with an additional lump sum of 4x FR and a return of contributions.
After retirement, a maximum of 2/3 pre commutation can be paid to dependan[ts]

Guarantee - Up to 5 years, the scheme can pay a lump sum in lieu of further pensio[n]
Up to 10 years, the dependants pension can only be paid when the original pension has stopped.

Contributions - Employees may pay up to 15% gross contributions up to the cap.

Leaving - Under two years, the employee may have a refund of contributions
Over two years, the scheme must provide a revalued deferred pension.
The scheme must provide transfer valueson request

The tax laws are changing in April 2006 to give a non-salary dependant limit on increase in value each year (using an annuity of 10) and a non-salary dependant limit o[n] overall benefits on retirement (using an annuity of 20). which are not taxed.
Tax relief is also availiable on all employers contributions, and employees contributions up to the higher of 3,600 and 100% salary.

Contracting Out

Approved schemes can contract out of S2P/SERPS by providing a replacement. In return, the NI contributions paying for S2P/SERPS are paid to the scheme. The Inland Revenue National Insurance Contributions Office (IRNICO) deals with applications to contract out and polices contracted-out schemes. The rates of contributions are set by the Government Actuaries Department.

The nature of contracting out depends on the type of scheme.

Defined Benefit before 6/4/97 - Scheme based test

Have to provide a guaranteed minimum pension calculated by the state to match SERPS. The government makes up any shortfalls.

Defined Benefit after 6/4/97 - Reference scheme test

Have to provide benefits better than the reference scheme for 90% of the members on each pension scale. ($1/80^{ths}$ on 90% of three year average of UBE, providing pension from 65 with LPI incs and 50% spouses benefit)

Defined Contribution

All NI conts get paid into a protected rights fund which gives a pension from 60 with LP13 for pre 97, LP15 for post 97 and LP12·5 for post 05. Unisex mortality must be used, death before retirement gives the pension to the spouse and death after retirement gives a pension of 50%.

Individual Provision

Individual provision depends on what both the state and employers do in terms of compulsion, incentives, regulation and benefit provision.

As all their assets are used to provide benefits, defined contribution or pooled arrangements are the only alternatives.

UK Individual Provision

In the UK, there are a number of different benefit vehicles.

Personal Pension - If you are not in an occupational scheme or earn under 30,000 you can contribute to a personal pension scheme. In the former case, contributions are age dependant, but you can always (and in the latter case) pay 3600. Up to 25% can be TFLS and up to 10% can be death before retirement benefits.

Stakeholder - This is a special personal pension scheme, with a minimum contribution of £20 and a maximum management charge of 1% p.a.

Section 226 policy - This is a retirement annuity contract for self-employed people before personal pensions were introduced.

Free Standing AVCs - These are open to members of occupational pension schemes who wish to pay AVCs outside their schemes.

Pooled arrangements - Mutual pooling is not currently a common method.

External provision - ISAs are the most comparable method due to their tax advantages.

It is possible to use Personal Pensions, Stakeholders and FSAVCs to contract out of S2P.

Day-to-Day Running

Once a scheme has been set up, it needs to be run. In approved UK employer schemes, ensuring this is done properly is the responsibility of the trustees with the support of the scheme actuary.

Running the scheme incorporates a number of activities, including

- Administration
- Managing assets
- Disclosing information
- Doing individual calculations
- Valuing the liabilities
- Producing accounts
- Dealing with Mergers and Acquisitions
- Discontinuing the scheme

A number of these areas are interesting due to their complexity, or have guidance or regulation attached to how they are done. We will look at these areas in more detail.

Trustee Duties

Trustees must act within the bounderies set out by the trust deed and rules, by trust law and by UK and european legislation. Their general duties are to

- Act in the best interest of all beneficiaries, balancing different classes fairly
- Act prudently, conscientiously and with good faith, maintaining confidentiality and not seeking to profit from their duties.
- Obtain specialist advice, and delegate appropriately to specialists.

They have the following responsibilities

- Being conversant with the trust deed and rules, the statement of investment principles and the statement of funding principles.
- Investing the scheme assets safely and prudently in accordance with the Statement of investment principles that they produced.
- Benefit administration, including maintainance of member records and calculation of member benefits. This is usually delegated.
- Exercise of discretionary powers as detailed in the trust deed and rules.
- Regular meetings and minutes

They should be aware of any conflicts of interest and seek to minimise their effect on descisions taken.

Appointing Actuaries

Approved UK employer pension schemes are required to appoint a scheme actuary. The person they appoint must be an actuary holding a current scheme actuary certificat[e]. This is a personal appointment and not an appointment of the actuaries firm.

When a scheme actuary is appointed, they must

- Provide and agree a letter of appointment as a scheme actuary
- Obtain written agreement from the trustees that they will advise of specified events which may be of material significance and that they will allow acces[s] to documents required for the scheme actuaries duties
- Recieve the declaration from the outgoing scheme actuary and consider whether events since they left could cause problems. If supplementary certificat[e] certificate J, certificate C or the reference scheme test certificate are invalid, they should contact the contracted-out employment group (COEG).
- Arrange to liaise with the scheme auditor, and if there are other advising actuaries, arrange for the division of responsibility to be set out in writing.

When a scheme actuary resigns or is removed, they must

- Provide a letter of resignation
- If the circumstances of their leaving causes concerns about the beneficiari[es] details of this should be included in the letter of resignation.
- Provide the incoming scheme actuary with details of non-reported breaches and details of all relevant reports made to OPRA and whether the trustees or auditor are aware of the reports.
- If contracted-out, provide the incoming scheme actuary with any details relevant to the schemes contracting out status, and inform the COEG of their leaving within a month.

If a scheme actuary is temporarily absent, they should put measures into place to keep informed, or ensure their duties are met, or they should resign the appointment.

Actuaries Duties

The scheme actuaries statutory duties are threefold - reporting to OPRA, providing periodic certification and advising trustees of certain events. In addition, actuaries may advise the trustees and other interested parties on matters related to running a pension scheme. In doing this, actuaries are expected to maintain professional standards - for example informing trustees of potential conflicts of interest that other appointments may cause.

Reporting to OPRA means the scheme actuary must provide a written report if they have reasonable cause to believe a duty relevant to the scheme has not been complied with, and this failure, taken in aggregate with any as-yet undisclosed breaches, is likely to be of material significance. The trustees should be kept informed except in cases casting doubt on them (e.g. fraud).

Periodic certification may be of benefits or liabilities, and includes

- Producing a valuation report on the ongoing, solvency and MFR basis
- Certifying that the schedule of contributions meets the MFR minimum.
- Certifying that statutory surplus maximum has not been breached
- Certifying the security of benefits for the accounts.
- When instructed, certifying what deficiency should fall on employers
- Certify that the methods and assumptions for individual calculations are suitable.
- Certify if the benefits satisfy the standard for contracted out schemes.
- Certify if trustees can change the members benefits without their consent.
- Certify if trustees can pay a bulk transfer without members consent.

The scheme actuary is required to inform the trustees if any action or inaction would materially affect the financing or solvency of the scheme, or if they are not happy that the scheme administrator can provide them with the data they need to do their duties.

Investment Management

Trustees have the responsibility of investing the trust assets, however they usually lack the specialist expertise. Therefore they delegate this task to an investment manager, who manages according to the trustees views as set out in a statement of investment principles (SIP). This details things such as

- Minimum / maximum holdings in certain asset classes
- Restrictions on self-investment / holding too much in a single company
- How futures / options may be used
- Foreign currency exposure limits.

The investment managers performance should be monitored against a benchmark or index funds corresponding to the ideal position of the scheme.

The investment managers mandate should be reviewed regularly. Following valuation is a good time as there will be a good idea of the liabilities to be covered. ALMs may be helpful to determine the optimal asset split.

When considering investment, trustees should keep the Myners principles in mind.

- Clear objectives
  - Focus on asset allocation
  - Explicit mandates
  - Appropriate benchmarks
  - Strategy on activism
- Good performance measurement
  - Regular reporting
- Effective descision making
  - Expert advice
- Transparancy.
- Choice of default fund for DC.

Disclosure

Trustees are obliged to disclose certain pieces of information. For members, they must be provided with a copy of the scheme booklet, and have a right to

- Scheme documentation (usually the trust deed and rules)
- Annual report and accounts
- Most recent actuarial valuation obtained by the trustees.

The annual report must contain an actuarial statement providing information about the schemes ability to meet its liabilities, and the contribution rate payable.

They are also required to disclose directors benefits, in particular

- For DB, the increase in accrued pension (both gross and net of inflation), and the increase in transfer value net of directors contributions
- For DC, the contributions paid.

They must also disclose information in the accounts, which are described later.

Accounts

Companies pension contributions and liabilities can be sizable. It is therefore important to produce pension scheme accounts to allow investors to make informed descisions.

All accounts should follow the accounting principles, the most important of which are prudence, consistency, ongoing-concern and accruals.

Accounts consist of two parts

Balance sheet - list of all assets and liabilities
Profit and loss account - reconciliation of this years with last years balance sheet

There are four main accounting standards in use in the UK at the moment - IAS19, FRS17, SSAP24 and FAS87. These differ in

Different emphisis on the balance sheet and profit and loss accounts
Choice of actuarial methodology and assumptions
Smoothing of fluctuations
Information to be disclosed

Items which may be disclosed include

Details of the assumptions and methods
Value of the accrued liabilities
Increase in past service liabilities
Return on assets
The surplus or deficit in the scheme

FRS17

This is the current UK standard, although it has not yet been fully introduced and will soon be replaced by IAS19. It is described in GN36.

Assets are taken at midmarket value, and liabilities are calculated using the PU method, using the discount rate corresponding to AA rated bonds, and other assumptio chosen by company directors after recieving actuarial advice.

The profit and loss accounts consists of

Pension cost = current service cost (employers share only)
+ interest cost (liabilities times balance sheet discount,
- expected return on assets (using long term yields)
+ past service cost change (immediately vesting benefit improvements
- gains on settlements and curtailments

FRS17 is balance sheet focused. This means that we add a balancing item into the profit and loss account below the line to ensure that the two reconcile. This is the value from the statement of recognised gains and losses (STRGL). This consists of

STRGL = difference between expected and actual return on assets
+ gains and losses due to other experience
+ gains and losses due to changes in assumptions

When reporting, we should include

The remit of the accounts
The valuation the numbers are based on, and the information and instructions used.
Where appropriate, highlight approximations and inherent volitility.
State allowances for tax.
Include a 5 year history of the STRGL

SSAP 24

This is the old UK standard and can still be used providing limited FRS17 disclosures are made. It is described in GN17.

Under SSAP24, the actuary in consultation with the company not only has the choice of assumptions, but also the choice of method. These should tie in with the accounting objective and taken as a whole, should provide a best estima of the cost of providing benefits. Typically projected unit, attained age or entry age methods are used.

The profit and loss account consists of

Net pension cost = regular cost (employers share only)
+ interest cost (surplus / deficit times discount rate)
+ variation cost (amortisation of past surplus / deficit)

The variation cost should amortise over employers future working life, using some systematic rational basis. These include

- Percentage of pensionable payroll
- Fixed annual amounts
- Installments of capital plus decreasing interest amounts.

Certain things should not be amortised, including unfunded benefit improvement extraordinary events, and at the companies discretion, refunds of surplus.

SSAP24 is profit and loss focused. This means that we add a balancing item into the balance sheet consisting of the difference between Net Pensio Cost and the actual payment. This is known as the pension prepayment, and cumulates over the years.

FAS 87

This is the US standard, which must be followed by companies that file accounts in the USA. It is described in GN13.

Assets are taken at market value but may be smoothed over 5 years. The liabilities are calculated using the PU method using the discount rate corresponding to AA rated bonds. The long term return on assets should represent the average future earnings expected from the fund, and other assumptions should be chosen by the employer with the actuary's comments.

The balance sheet needs three values to be calculated

Projected benefit obligation (PBO) (Value of liabilities)
Accrued benefit obligation (ABO) (Value of liabilities assuming zero salary increa
Vested benefit obligation (VBO) (Value of liabilities assuming members defer).

The profit and loss account consists of

Net periodic pension cost = service cost (employers share only)
+ interest cost (liabilities times balance sheet rate)
- return on assets (using asset yields)
+ amortisation

Surplus or deficit in a corridor of 10% max (PBO, Assets) does not have to be recognised. Outside this, it must be amortised over the future working lifetime

FAS 87 is balance sheet based. Despite this, the balancing item of the difference between Net periodic pension cost and the actual payment is recorded on the balance sheet as the prepaid pension cost, and cumulates over the years.

Valuations

Valuations are calculations designed to answer certain questions about a pensio scheme to aid descision making. They involve calculating

- The value of the assets
- The value of accrued benefits
- The value of benefits expected to be accrued in the future
- The value of contribution expeded to be paid in the future
- Any of these under a different scheme structure

The values calculated depend on the method, assumptions and data used. This in turn depends on who requested the valuation and for which purpose. Possible groups include the state and state bodies (such as regulators), the sponsor and investors, the beneficiaries and their trustees, or facilitators. Possible questions include

- Are the funds adequate to provide the benefits promised
- What contributions are required to fund benefits in the future

- Are the funds adequate if the sponsor becomes insolvent
- Is the scheme over funding to avoid tax
- What savings could be made by changing benefits
- What liability profile should we match the assets to
- When transferring members, how much should be paid

Valuation Models

A good valuation model will have the following properties

- Based on similar experience to that being projected
- Features all relevant aspects in the model
- Practical to set up and run
- Consistent between assets and liabilities
- Produces stable outputs
- Produces outputs with a known level of security.

Possible models include

Replicating portfolio - Take assets at market value, and calculate the liabili
value as the cost of a portfolio of assets with same future cashflow.
Finding suitable assets to match, say, salary growth and mortality is hard.

Asset based discount rate - Take assets at market value, and calculate the liabilit
value using a discount rate derived from market yields.

MVA variant - Take assets at market value, and calculate the liability value
using long term discount rates. Multiply the liability value by
a market value adjustment.

Discounted cashflow - Value assets and liabilities using long term assumptio
Note that assets will be different to market value.

Stochastic model - Use either of the last two methods, but use stochastic
rather than deterministic methods.

Smoothed market value - Use any of the first three methods, but use a
smoothed market value for both the assets and the indices used
for the liabilities.

Valuation Assumptions

Valuation assumptions can be split into two categories

Economic assumptions - discount rate, price inflation, earnings growth, etc
Demographic assumptions - mortality, decrements, spouse details, promotion, etc.

The choice of assumptions depends on aspects including

- Legislation and professional guidance
- Choice of method
- Current and historic market levels
- Membership profile
- Degree of prudence required

The choice of 'degree of prudence' is not trivial

- It must encompass all assumptions - a basis where each individual assumption is prudent may be overcautious when taken as a whole
- Different parties have different views on the amount of prudence that's justified
- Overly prudent / optimistic valuations can lead to unexpected results (e.g. the company reducing benefits or going insolvent due to bad results)

Valuation Data

Data is required to value a schemes assets and liabilities. The most important pieces of data are as follows

Scheme data - Trust deed and rules
- scheme booklet and member announcements
- previous advice, information and reports
- past / future discretionary practices, relevant trustee descisions
- changes in sponsor, scheme, investments, etc.

Member data - including identifier, date of birth, date joined scheme, status, membership category, details to calculate benefits, etc.

Asset data - as at date of valuation

Accounts - audited accounts should provide a useful cross-check of the membership and asset data

Once we have the data, we need to check it is complete and accurate. While it is not possible to check all aspects, we can check it is self-consistent, consistent with last times data, and consistent with the scheme rules. The inability to do such checks is one reason why summarised data is not as useful as complete data.

Types of Valuations

There are a number of standard types of valuations in the UK.

Ongoing valuation - The aim is to give a good indication of the funding level, and to produce a stable future contribution rate. The choice of assumptions is relatively free, and tends to err on the side of caution.

Discontinuance valuation - This measures the security of benefits assuming no further benefits or contributions are paid. In the UK, we must show the actual cost of transferring liabilities to an insurance company. Other approac include finding the cost of providing cash equivalents to active/deferred members or the cost of running as a closed scheme.

In addition, we should show which benefits, going down the priority order, would actually get paid.

Minimum Funding Requirement - This uses the MVA adjusted method for actives/deferreds and the asset based discount rate for pensioners. (see GN27). Future contributions must be sufficiently high to maintain MFR funding, or achieve it in a given time period. (in which case, the SOC must be checked annual

Statutory Surplus valuation - Liabilities are valued using 8.5% return, up to 8% earnings inflation. If assets > 105% liabilities, the surplus must be reduced through contribution holidays, benefit improvements or refunds of contributions.

Pension Protection Fund valuation - A valuation used to determine the levy charged by the pension protection fund. This can usually be done by rolling forward the triennial valuation and switching.

Accounting valuation - A valuation to determine the figures to put into the annual report and accounts. Again, this can usually be done by rolling forward the triennial valuation and switching.

Triennial Valuations

Legislation requires that approved UK employer schemes obtain valuations at intervals of no less than three years. This should include valuations on the ongoing, discontinuance, MFR and statutory surplus basis.

The actuary should issue a report as detailed in GN9, containing

- Basic information - who the report is for, why it was commissioned, details of the data (audited accounts), benefit overview, etc.
- Funding objectives - objectives and method used, any changes from last time
- Contribution rate - recommended contribution rate or rates
- Ongoing funding level
- Solvency funding level
- MFR funding level
- Intervaluation period - reconciliation with last times valuation, contributions provided, special events or scheme changes, etc.
- Valuation assumptions and method
- Actuarial statement - valuation in accordance with GN9, comparability of asset / liability valuation method

Analysis of Surplus

This is the process of estimating the change in surplus as a result of know experience. It is useful because

- It is a semi-independant check on the valuation results
- It highlights where the experience gains and losses have been
- It is a requirement of GN9 to include one in the valuation report.

Inorder to do an analysis of surplus, we project forwards last times result, switch it to the new basis, and then step by step replace expected with actual experience. Typical items in an analysis of surplus include

Interest on surplus / deficit
Change of basis
Investment return different to expected
Contributions different to service cost
Salary increases different to expected
Inflation increases different to expected
Withdrawal / retirement different to expected

Further Calculations

There are a number of other calculations that might be done as part of the valuation process. These include

Analysis of experience - checking how the actual and expected experience during the inter valuation period compare.

Scenario analysis - looking at the future position of the scheme under various economic scenarios.

Valuing options - valuation calculations may be complicated by having to value options and guarantees, such as guaranteed commutation rates, transfer values, early and late retirement etc.

Removing surplus/deficit - How best to remove surplus or deficits depends on whether it is actual or notional, the size of it, legislation and tax treatment, what is mandated in the trust deed and rules, the sponsor and trustees attitude, the source of the surplus and how quickly the correction must take place.

Transferring Members

Employers may wish to transfer groups of members from one scheme to another. The two main scenarios are

Buying another business - When a company has sold part of its business, they no longer have an interest in financing the pension scheme for that pa
The buying scheme often takes on the past service liability, because

- This minimises employee disruption and uncertainty.
- This shows interest in and commitment to the business
- In a final salary scheme, it gives incentive to stay in the company.
- It is largely cost neutral due to the bulk transfer value
- It may be a condition of sale

There may be a number of disadvantages, including the cost of future funding and disruption in the event of benefit changes.

Consolidating pension provision - Advantages of consolidating two or more schemes includ

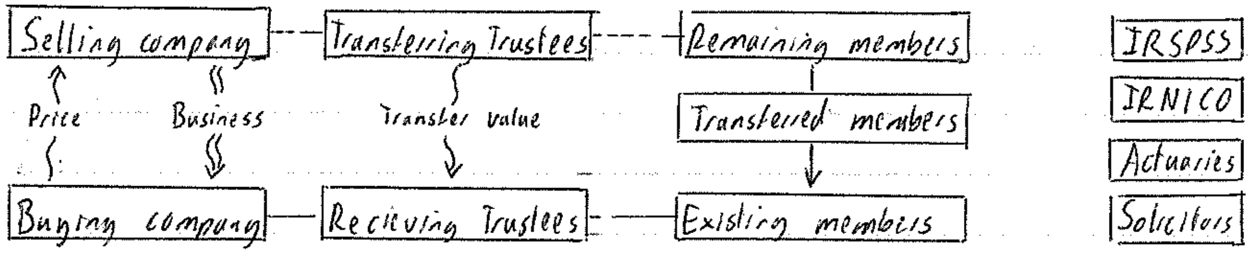
- Only one scheme and set of trustees, so less company management time
- Reduced admin, investment management and professional fees
- Harmonisation of benefits helping corporate identity
- Large funds giving flexibility and better purchasing power
- The possibility of using one schemes surplus to strengthen another.

Disadvantages include

- Frictional costs of consolidation, including professional costs, independan advice for trustees, member communication costs, the risk of legal challen and the cost of improving benefits to persuade members to merge.
- It is harder to separate the businesses later
- More complex administration

Interested Parties

In the most complicated scenario - buying another business where the pension scheme has GMPs, the main parties involved are



The various parties have particular roles

Buying / selling companies - The companies initialise the process. Their goal is to further the aims of their business by getting as good a deal as possible while ensuring their scheme members are happy. They will wish to minimise future cost and pension scheme complexity. However, they will be prepared to give up an advantage in pensions for a benefit elsewhere and vice versa.

Savings, Pensions, Share schemes - The agreement of IRSPSS is required for any bulk transfer, and for participation in another employers scheme. This is to avoid bulk transfers being used to dodge tax.

National Insurance Contributions Office - The agreement of the NICO is required to ensure GMPs are safeguarded on transfer

Actuaries - These advise the companies and trustees on the financial implication of the deal, including methods and assumptions, administratio arrangements and terms to be offered to the members.

Solicitors - These advise on legal aspects of the transactions

Transferring Trustees

The trustees should follow legislative requirements and the trust deed and rules. They must act in the interests of all the members, considering accrued benefits, their security, established discretionary increases and potential benefit increases. They should take independant legal advice and consider independant professional advice

One of the duties of the transferring trustees is to calculate the bulk transfer valu The method used is usually past service liability, leaving service liability, share of fund or one of these modified by the priority order. The choice of assumptions is usually the funding, accounting or a similar basis. There is usually an overall minimum of the MFR.

An important question is what to do about surplus or deficit. In particular, who owns it and should get advantage from it. Possibilities include the selling company, split between them and the bought business, or the scheme membership.

Another duty is to ensure the benefits provided in exchange for the bulk transf value are sufficient and secure enough. If this is not the case, the trustees may want to consider benefit improvements or ringfencing. This may only affect some transferring members due to the priority order.

A final duty is for the trustees to get member consent, or get the scheme actuary to sign a GN16 certificate. By signing this, the scheme actuary confirm that the level and security of guaranteed and discretionary benefits is not materially worse, either on an ongoing or a wind-up basis, for any of the members. For discretionary benefits, they must have 'good cause to believe' - eg stated policy. They should draw trustees attention to differences in wind-up position, consider how the PPF may affect things and refuse to sign if they have insufficient data. This certificate allows the trustees to go ahead with the transfer subject to other conditions. However, ultimately it is still the trustees descision.

Recieving Trustees

The trustees should follow legislative requirements and the trust deed and rules. They must act in the interests of all their members, considering accrued benefits, their security, established discretionary increases and potential benefit improvements. They should take independant legal advice and consider independant professional advice.

Their main role is to calculate the benefits a transfer value provides and to ensure that both the existing and transferred members benefits are secured. This may involve asking for additional funds, ringfencing funds, etc.

The method of calculating benefits will depend on the trust deed and rules and on the employers wishes. The basis used will usually be the one that the transfer value was originally calculated on. Possible benefit structures include

Mirror scheme - both past and future service the same as the old scheme.
Match past benefits - give past service the same as the old scheme, but accrue new benefits on the buyers scheme basis.
Added years - give added years in the buyers scheme, possibly individually calculated, possibly with a guarantee that they won't be worse off.

They may also get special terms, say on redundancy, if the seller was worried that all the members would be got rid of.

When considering the bulk transfer, they might also wish to consider indirect effects. These include future administrative and trustee arrangements, impact on the priority order, future discretionary benefit improvements, etc.

Sale and Purchase Agreement

This is a legal document between the buyer and the seller in mergers and acquisitions. Pensions will usually form a distinct section or 'schedule' of the agreement. It may include the following

Definitions of terms used

Obligations of the seller - This includes supplying relevant data, trying to ensure trustees pay the agreed amount, making up any shortfall (a shortfall clause) allowing transferring employees to remain in its scheme and seeking approval from the SPSS and NICO.

Obligations of the buyer - This includes providing certain benefits, paying back any excess transferred funds (an excess clause), participation in the sellers scheme and making suitable member announcements.

Details about the transfer - includes calculation of the amount, timing of the payment, what happens in the event of a dispute, etc.

Actuarys letter - This is a letter from the sellers to the buyers actuary setting out the details of the actuarial methods and assumptions agreed.

Warranties - Pensions warranties often form part of a longer list of warranties in which the seller guarantees the accuracy of information supplied.

M&A Timetable

Due to their complexity and the number of parties required, M&A bulk transfers cannot happen on one day. There is usually a timetable similar to.

	Buyers and sellers negotiate terms of deal
Completion Date	Sale and purchase agreement signed
Participation Period	Third parties agreement sought and transfer calculated
Transfer Date	Transferring members start in new scheme
Payment Date	Transfer amount is paid between schemes.

The participation period is required to give time to get agreement from the members, inland revenue, give time to establish a new scheme if necessary, and to calculate the value that must be transferred. In the mean time, the buyer contributes to the sellers scheme. There are three main methods

Fund-within-a-fund - The initial transfer value is calculated at completion date. This forms a sub-fund into which contributions are paid and benefits are paid from. Active members who leave are the buyers responsibility

Variant method - As with fund-within-a-fund, except active members who leave remain the sellers responsibility.

Transfer date - The transfer value is at transfer date. The buyer pays straight-forward service cost contributions in respect of transferring members. This rate needs to be predetermined

There will also need to be an adjustment made for payment later than the calculation date. This will typically be an interest rate or investment return based calculation. Interim payments may also ease these problems.

Discontinuance

A scheme may discontinue (stop accruing benefits) for a number of reasons.

- The sponsor becomes insolvent or stops contributing
- The sponsor requests the trustees to wind the scheme up (if allowed by TD&
- The trustees believe winding up is in the members best interests

When this happens, there are a number of options

Closure - The scheme closes to new entrants but otherwise continues normally.
Continuation - The scheme closes to future accrual, but continues normally.
This may include ignoring future salary growth
Transfer to another scheme - Assets and liabilities are passed to another scheme
Transfer to beneficiary - The members recieve a cash value for their benefits.
Wind-up - Assets and liabilities are transferred to an insurance company.
Central discontinuance fund - This takes over the scheme assets and pays a (usually) reduced set of benefits.

The choice of method will depend on legislation, the liability profile of the scheme, and the funding level.

Surplus and Deficit

In ideal circumstances, there will be exactly enough funds to pay the benefi
In practice, however, there will usually be a surplus or a deficit.

If there is a deficit, the trustees have the right to demand extra funds from the employer. The amount varies on circumstances.

- If the employer is insolvent, they can demand up to the MFR.
- If the employer is not insolvent and the wind up started before 11 June 2003 they can demand up to the MFR for actives and deferreds, the cost of immediate annuities for pensioners, and the true cost for expenses.
- If the employer is not insolvent and the wind up started after 11 June 2003, they can demand the cost of deferred annuities for actives and deferreds the cost of immediate annuities for pensioners, and the true cost for expenses.

If the amount is still not enough, then benefits must be provided for following the priority order.

If there is a surplus, then the surplus assets should be distributed according to the trust deed and rules. The expectations of the beneficiaries can help here (e.g. expecting discretionary increases).

Note that the choice of method can determine whether a scheme has a surplus or deficit. This is therefore an area where the trustees urgently need legal and actuarial advice when choosing which approach to follow.

Process of Wind-up

The process of winding up a scheme is as follows

Crystalisation date - It is determined that the scheme will wind up. Members are allocated to particular categories and the scheme's investment strategy is reviewed. Members are notified about

- The date when benefits cease to accrue
- The reason the scheme is being wound up
- The actions to establish the scheme's assets and liabilities and their implications
- The name and address to whom queries should be sent
- Annual updates should be provided.

Member data should be collected, and legal advice be taken

Calculation date - The schemes liabilities should be valued, to determine if there is a debt on employer and what various methods would result in.

Applicable time - If appropriate, GN19 calculations should be carried out to give the debt on employer. This should be paid.

The priority order should be established, the debts with members should be settled (with a default arrangement if the member doesn't contact them) Finally, a 'dispersal of assets' form must be submitted to the SPSS, and the NIC must be contacted in respect of contracted out rights.

For windups since 1 April 2003, the scheme must report to OPRA with its plans within three months, and then provide annual reports detailing delays.