



Actuarial Valuation as at 31 October 2018

Hewlett-Packard Limited Retirement Benefits Plan: Hewlett-Packard Section

Prepared for	Hewlett Packard Enterprise UK Pension Trustee Limited
Prepared by	David Eteen FIA, Scheme Actuary
Date	23 January 2020

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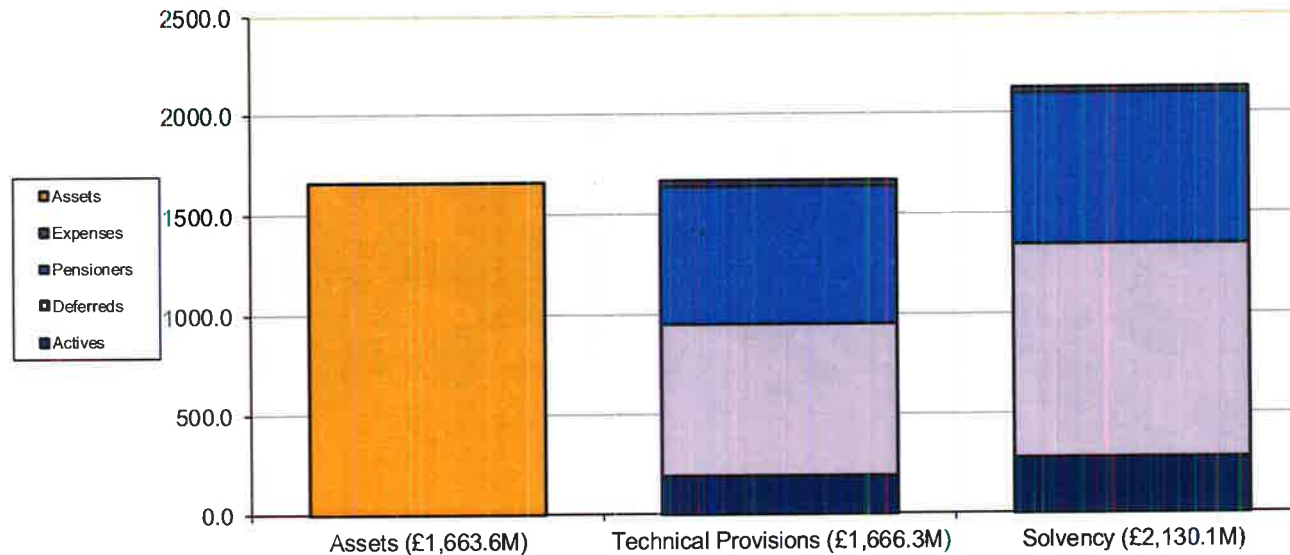
Executive Summary

The key results of the actuarial valuation as at 31 October 2018 are set out below.

There was a deficit of £2.7M relative to the technical provisions
 (i.e. the level of assets agreed by the Trustee and the Company as being appropriate to meet member benefits, assuming the Plan continues as a going concern).

There was an estimated deficit of £466.5M relative to the solvency liabilities
 (i.e. the estimated level of assets needed to buy insurance policies for benefits earned to the actuarial valuation date).

The Company paid £10.7M into the Plan in April 2019 which was sufficient to pay off the technical provisions shortfall. Currently no further Ongoing Funding Obligation Contributions are required to cover future accrual of benefits as this is expected to be covered by additional returns on the assets in excess of the discount rate. In practice Ongoing Funding Obligation Contributions are recalculated annually. The only contributions required are Salary Sacrifice Funding Obligation Contributions and the cost of any augmentations to benefits.



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Introduction

This report has been prepared for the Trustee to meet the requirements of Section 224(2)(a) of the Pensions Act 2004. It sets out the results and conclusions of the actuarial valuation of the Plan as at 31 October 2018.

This is a scheme funding report, it summarises the key aspects of the actuarial valuation process, including:

- The funding objective and background details
- The technical provisions
- The corresponding future service costs
- The agreed recovery plan and other contributions
- The results on the solvency basis
- Further information required for compliance purposes, including:
 - The legal framework within which the actuarial valuation has been completed
 - A summary of the membership and asset data, the benefits valued and details of the assumptions used for the actuarial valuation
 - My statutory certification of the technical provisions
 - A glossary of some technical pensions terms

Throughout the body of this report, defined contribution (DC) benefits (i.e. DC AVCs) have been excluded from the actuarial valuation results because in my view this provides a clearer picture. In order to comply formally with the legislation, an alternative presentation of the actuarial valuation results is shown in Appendix A.

Shorthand

Plan

Hewlett-Packard Limited Retirement Benefits Plan: Hewlett-Packard Section

Trustee

Hewlett Packard Enterprise UK Pension Trustee Limited

Company

Hewlett-Packard Limited

Rules

The Plan's Trust Deed and Rules dated 30 October 2019

Annual Salary

Annual base salary (or annual earnings objective for sales grade employees)

Pensionable Service

As defined in the Rules

Important Note: The report concentrates on the Plan's financial position at the actuarial valuation date. As time moves on, the Plan's finances will fluctuate. If you are reading this report some-time after it was produced, the Plan's financial position could have changed significantly.

Previous actuarial valuation results

A summary of the results, recovery plan and agreed contributions following the previous actuarial valuation is set out below.

The key results from the previous actuarial valuation as at 31 October 2015 were:

- There was a deficit of £154.1M relative to the technical provisions, which corresponded to a funding level of 89%
- There was an estimated deficit of £707.6M relative to the solvency liabilities

Contributions agreed as part of previous actuarial valuation

The key outcome of the actuarial valuation as at 31 October 2015 was that the Company would pay Ongoing Funding Obligation Contributions (as defined in the Statement of Funding Principles) of:

- £34.3M – due to be paid by 30 April 2016
- £50.2M – due to be paid by 30 April 2017
- £0.257M – due to be paid by 31 October 2017
- £3.5M – due to be paid by 30 April 2018
- £4.3M – due to be paid by 30 April 2019
- ££6.4M – due to be paid by 30 April 2020
- £4.6M – due to be paid by 30 April 2021

The Company was also required to pay Salary Sacrifice Funding Obligation Contributions (as defined in the Statement of Funding Principles).

Contributions paid

As agreed, the Ongoing Funding Obligation Contributions were recalculated annually as at each 31 October. The following Ongoing Funding Obligation Contributions were actually paid:

- £34.3M in March 2016
- £50.2M in March 2017
- £0.257M in October 2017
- £10.7M in April 2019

Notable changes since the previous actuarial valuation

Changes to the Plan since the previous actuarial valuation are summarised below.

- **Bulk transfer**

A bulk transfer of the Bank of Ireland Section (which included Medas members) into the Plan took place in 2016.

A bulk transfer took place in 2017 to the Electronic Data Systems Retirement Plan ('the EDS Plan'). A number of EDS Plan members also started accruing pension benefits in the Plan and some of these members transferred-in past service liabilities. These transfers in and out of the Plan were agreed on a basis that was broadly cost neutral on the technical provisions assumptions at that time (after allowing for a top up payment made by Hewlett-Packard Limited).

- **Investment strategy**

The Plan has continued to de-risk in line with the pre-agreed de-risking strategy and now invests 12% in growth assets and 88% in protection assets. The de-risking strategy has been set such that 10% will be invested in growth assets and 90% in protection assets by the time the Plan is 102% funded on the technical provisions.

- **Contingent assets**

A guarantee from Hewlett Packard Enterprise Company was in place when the previous actuarial valuation was carried out and remains in place. The guarantee previously in place with Hewlett Packard the Hague B.V. is no longer in place as the Plan is now over 105% funded on the PPF basis.

- **Cessation of contracting out**

The Plan ceased to be contracted-out of the State's second tier pension arrangements with effect from 6 April 2016, when the ability of schemes to remain contracted-out terminated. Following the cessation of contracting out member contributions were increased.

- **GMP equalisation**

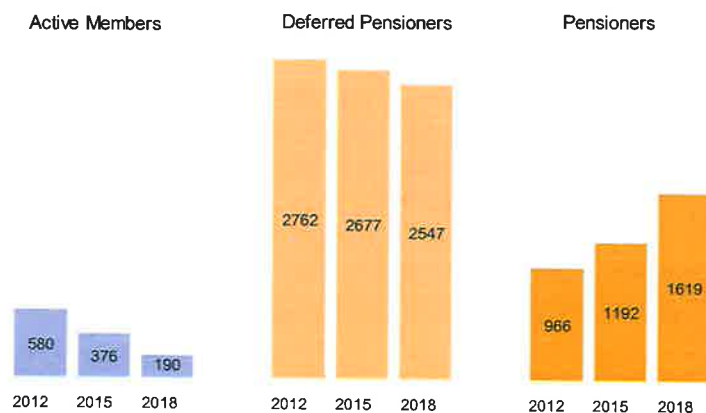
The High Court ruled on 26 October 2018 that pension schemes are required to equalise benefits for the effect of gender-based inequalities in Guaranteed Minimum Pensions (GMPs). The Trustee is currently working with its advisers and the Company on how best to adjust benefits to reflect this ruling.

Data and benefits valued

Key information on the membership data used and the benefits valued in the actuarial valuation are summarised here.

The Plan has continued to become increasingly mature with the proportion of pensioners increasing. The membership numbers are shown graphically below. Further details can be found in Appendix B.

Membership profile of the Plan



Members are entitled to benefits defined in the Rules. A summary of the benefits is included in Appendix C.

Benefits have been valued in line with those payable under the Rules and making the following allowances:

- **GMP equalisation**

An approximate allowance for equalising GMPs has been made by adding 0.3% to the Plan's technical provisions. This includes an approximate allowance for both past and future benefit payments. This is a change in approach from that adopted at the previous actuarial valuation

- **Discretionary benefits**

No allowance has been made for the granting of discretionary benefits in future

Funding objective and investment strategy

The Trustee's funding objective is to hold assets which are at least equal to the technical provisions (i.e. to meet the statutory funding objective).

Funding objective

A key factor in setting the funding objective is the Trustee's assessment of the covenant supporting the Plan. The Trustee commissioned Lincoln Pensions to carry out an independent review of the covenant and this concluded that the overall covenant supporting the Plan was "slightly strong". The covenant strength rating is weaker than when assessed for the previous actuarial valuation and this has been taken into account in setting the assumptions to be adopted for the technical provisions and in agreeing the recovery plan.

Investment strategy

The asset allocation as at the actuarial valuation date is described in Appendix D.

The Trustee's investment strategy is set out in its statement of investment principles. In summary the Trustee's strategy is that as the funding level improves, the investment strategy will be de-risked. The de-risking strategy has been set such that 10% will be invested in growth assets and 90% in protection assets by the time the Plan is 102% funded on the technical provisions. The investment strategy at the date of signing this report is to invest 12% in growth assets and 88% in protection assets. Interest-rate and inflation hedges are also used to reduce the sensitivity of the funding level to changes in both of these.

Summary of assumptions

The Trustee and the Company have agreed the assumptions used to calculate the technical provisions and the cost of future benefit accrual. The table below summarises the key assumptions, together with those used for the previous actuarial valuation, and the reasons for any change. Further details of all of the assumptions are set out in the Statement of Funding Principles dated 23 January 2020.

Assumption	Previous actuarial valuation	This actuarial valuation	Rationale for change/comments
Discount rate	Single equivalent yield equal to the forward UK gilt curve plus 0.7% p.a.	Single equivalent yield equal to: The forward UK gilt curve plus an addition of: <ul style="list-style-type: none"> ▪ 1.0% p.a. to the forward rates commencing before 31 October 2030 ▪ 0.5% p.a. to the forward rates commencing on or after 31 October 2030 	Given Lincoln Pensions' conclusion that the covenant supporting the Plan has deteriorated from "Fairly Strong" to "Slightly Strong", the Trustee concluded that it was appropriate to amend the discount rate to reduce the reliance on the employer covenant over time
RPI inflation	The proportion of RPI linked liabilities hedged are valued in line with market implied RPI. The remainder of the RPI linked liabilities are valued assuming RPI equals 3.00% p.a.	No change	98% of RPI linked liabilities were hedged as at 31 October 2018

CPI inflation	RPI inflation less 0.9% p.a.	RPI inflation less: <ul style="list-style-type: none"> 0.9% p.a. for deriving assumptions relating to pension revaluations in deferment 0.8% p.a. for deriving assumptions relating to pension increases in payment 	Updated in light of the Chancellor announcing he is to commence a consultation in January 2020 on aligning RPI with CPIH at some point between 2025 and 2030
Salary inflation	2.5% p.a.	3.0% p.a.	Reflects the Company's accounting assumption as at 31 October 2018 and is supported by recent experience
Pension increases:	Consistent with inflation assumptions and allowing for Aon's best-estimate of future inflation uncertainty	No change	N/A
Basic State Pension increases	4.0% p.a.	No change	N/A
Post-retirement mortality assumption - base table	SAPS S2 Light tables with 98% (male) and 91% (female) scaling factors	SAPS S3 Light tables with 104% (male) and 102% (female) scaling factors	Reflects latest analysis of the Plan's membership

Post-retirement mortality assumption - projection	CMI_2016 projections with a long-term improvement rate of 1.25% p.a. and a period smoothing parameter (S_K) of 8.0	CMI_2018 projections with a long-term rate of 1.25% p.a., a period smoothing parameter (S_K) of 7.0 and an initial addition to mortality improvements parameter (A) of 0.5% p.a.	Reflects updated data and research
Expense Reserve	Nil (an allowance was made for expenses when calculating the Ongoing Funding Obligation contributions)	1.5% of liabilities	Allowance for expenses now included in technical provisions rather than being covered on a pay as you go basis
GMP Equalisation	No allowance	Increase the liabilities by 0.3% until equalisation is complete	Estimated cost of equalisation assuming that GMP equalisation is implemented using method C2 of the Lloyds Bank court judgement
CETVs on retirement	No allowance	15% of active and deferred members transfer out on retirement	Reflects recent experience

As for the previous actuarial valuation, the technical provisions have been calculated using the projected unit method. This method, with a one year control period, has also been used to calculate the cost of future benefit accrual.

Past service results

The Trustee's technical provisions and resulting funding position are shown below.

	Technical Provisions (£M)
Value of past service benefits for:	
Actives	187.9
Deferreds	767.8
Pensioners	686.0
Expenses	24.6
Value of liabilities	1,666.3
Value of assets	1,663.6
Past service surplus/(deficit)	(2.7)
Funding Level	99.8%

The key assumptions are the discount and inflation rate. The sensitivity of the technical provisions to changes in these key assumptions in isolation is as follows:

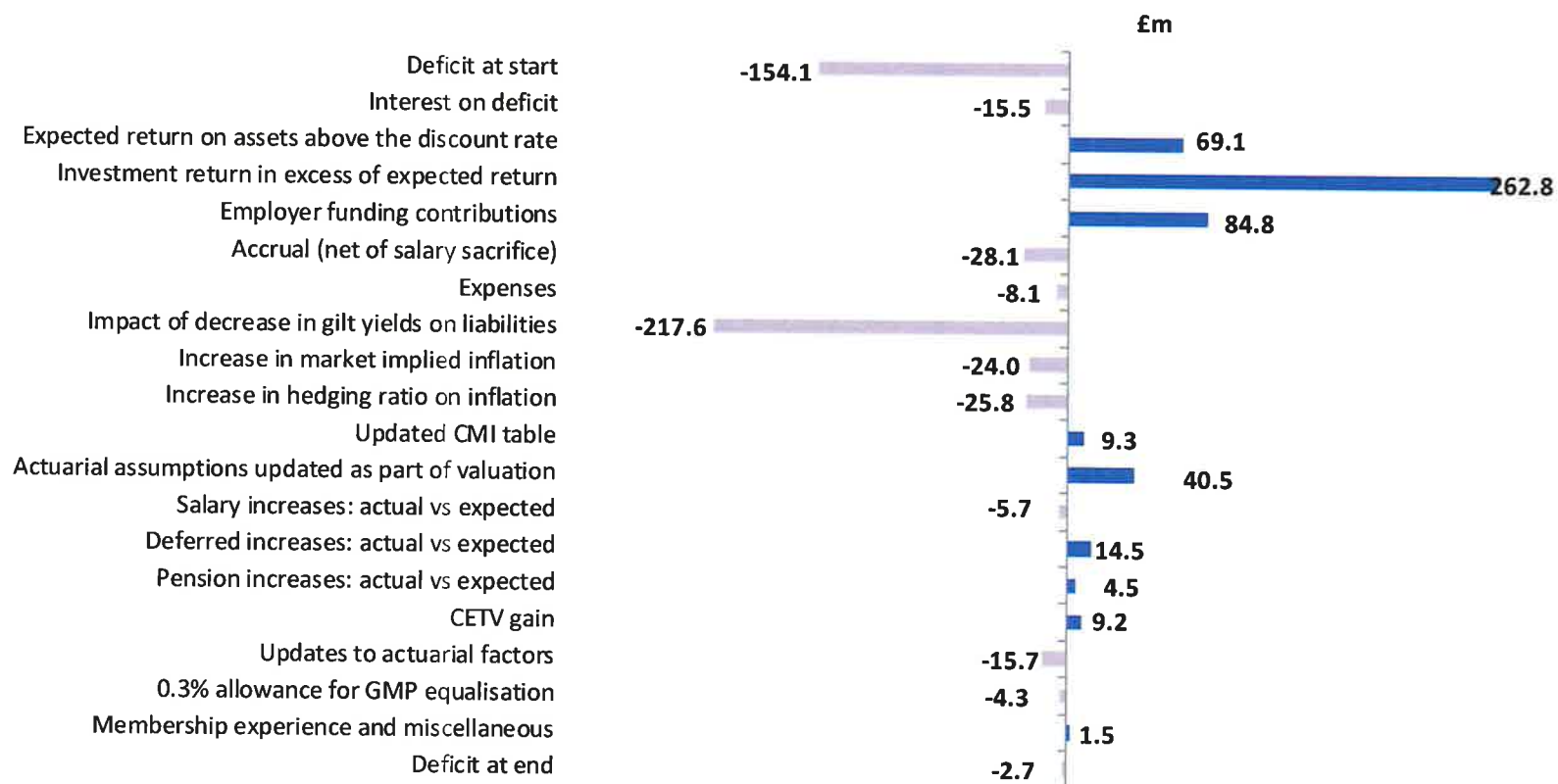
- A 0.25% p.a. decrease in the discount rate increases the technical provisions by £80M
- A 0.25% p.a. increase in the RPI inflation assumption (also allowing for the consequent impact on the assumptions derived directly from that assumption) increases the technical provisions by £55M

In practice the Trustee has implemented interest-rate and inflation hedges to minimise the impact on the funding level if either of these changes.

The Trustee and the Company agreed not to allow for post actuarial valuation date experience when setting the contributions in this actuarial valuation.

Reasons for change in past service funding position

The past service results show that the deficit of £154.1M in the Plan at the previous actuarial valuation has become a deficit of £2.7M at this actuarial valuation. The chart below quantifies the key reasons for this change:



The analysis shows that the main factors affecting the funding position since the previous actuarial valuation have been:

- Ongoing Funding Obligation Contributions paid, which have reduced the deficit
- Investment returns being greater than expected, which have reduced the deficit
- Changes in market conditions, in particular falling gilt yields, which have increased the deficit
- Changes to the actuarial assumptions agreed as part of the actuarial valuation, which have decreased the deficit

Recovery plan

Following discussions, the Trustee and the Company have agreed a recovery plan as described below.

The recovery plan is designed to eliminate the deficit at the actuarial valuation date relative to the technical provisions by the end of the recovery period (which is by 30 April 2019) through a combination of additional contributions and investment returns above the discount rate used to calculate the technical provisions.

The other assumptions underlying the recovery plan are the same as for the technical provisions.

Full details of the agreed contributions are set out in the later section of this report.

Since the date of the latest actuarial valuation which was carried out as at 31 October 2018, the Employer paid £10,700,000 into the Plan in April 2019. This was sufficient to make good the shortfall.

Future service results

The table below shows the cost at the actuarial valuation date of benefits that members will earn in the Plan in future.

	% Annual Salary
Value of benefits accruing	50.5%
Less member contributions	(9.7%)
Net cost to the Company	40.8%

A handful of active members with HMRC protection receive lump sum death benefits from the Plan, but the Company pays the insurance premium of these directly so the cost is not included in the above.

The key assumptions are the discount and inflation rate. The sensitivity of the cost of future benefit accrual to changes in these key assumptions in isolation is as follows:

- A 0.25% p.a. decrease in the discount rate increases the value of benefits accruing to 53.5% of Annual Salary
- A 0.25% p.a. increase in the RPI inflation assumption (also allowing for the consequent impact on the assumptions derived directly from that assumption) increases the value of benefits accruing to 52.1% of Annual Salary

Solvency position

The statutory estimate of the Plan's solvency position is set out below.

	Solvency (£M)
Value of past service benefits for	
Actives	278.3
Deferreds	1,068.0
Pensioners	756.3
Expenses	27.5
Value of liabilities (solvency estimate)	2,130.1
Value of assets	1,663.6
Surplus/(Deficit)	(466.5)
Solvency ratio	78.1%

This solvency estimate represents the estimated cost of purchasing annuities as at the actuarial valuation date from an insurance company to meet the Plan's benefits. The assumptions include an allowance for the expenses of winding-up the Plan. Further details and the assumptions used in the solvency estimate are summarised in Appendix E.

The solvency estimate is higher than the technical provisions, the broad reasons for which are set out below:

- Insurers will typically hold less risky assets which provide lower investment returns than are expected to be achieved on the Plan's assets
- Insurers typically hold larger margins, for example by assuming that members will live longer than is assumed in calculating the technical provisions
- Insurers need to cover costs, including administering the benefits, and also make a profit
- Allowance is made for the cost of winding up the Plan

In practice, if the Plan were to be discontinued with no solvent employer then the assets are unlikely to be sufficient to provide the benefits in full. If this were the case then:

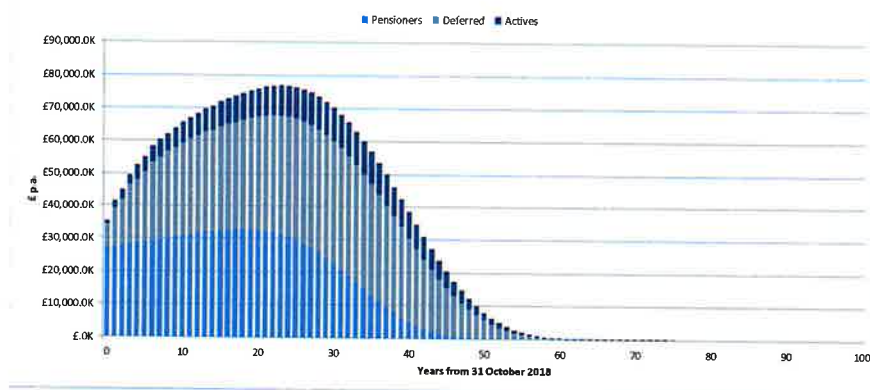
- Benefits corresponding to those covered by the PPF would be met first (either through the PPF or, if there were sufficient funds, by securing these benefits with an insurance company)
- Any remaining assets would be used to secure part of the remaining benefits with an insurance company

The proportion of full benefits provided will vary from member to member and may be higher or lower than the statutory estimate of solvency ratio quoted above.

Funding and investment risks

The funding level is likely to exhibit volatility. This is discussed below.

The benefit payments from the Plan are expected to be made for a very long period – the chart below shows the projected cashflows on the technical provisions basis for the Plan.



The Plan faces a number of key risks which could affect its future cashflows and funding position, including:

- Funding risk – the risk that the technical provisions are set too low and prove insufficient to meet the liabilities (e.g. in the event of unexpected discontinuance)
- Investment risks – the risk that investment returns are lower than assumed in the actuarial valuation, and also that the assets are volatile and move out of line with the liabilities, so the funding position is volatile

- Liquidity risk – the risk that cashflows are higher than expected as members commute more than is assumed or take transfer values, possibly leading to the sale of assets at inopportune times
- Longevity risk – the risk that Plan members live for longer than assumed and that pensions would therefore need to be paid for longer
- Inflation risk – the risk that inflation is higher than assumed, increasing the pensions that need to be paid
- Sponsor risk - this is the risk that the sponsor is no longer willing or able to support the Plan to fund the recovery plan and any future losses that arise
- Other risks – issues relating to climate change and other environmental risks as well as long-term uncertainty around geopolitical, societal and technological shifts may also impact on the funding, investments and sponsor covenant of the Plan

Actions taken by the Trustee to mitigate risks include:

- Adopting a diversified investment strategy
- Investing in liability driven investments, so that changes in the value of the liabilities will be largely matched by changes in the asset values, thus reducing the funding volatility

Agreed contributions and projections

The Ongoing Funding Obligation Contributions are determined using the approach set out in the Statement of Funding Principles.

Ongoing Funding Obligation Contributions are calculated as:

- Cost of new benefits accruing in excess of salary sacrifice contributions; plus
- Amortisation of deficit (see below); less
- Additional expected return on assets above the discount rate used to value the technical provisions

The amortisation of deficit is calculated as set out as follows:

- Any deficit below 85% of the technical provisions will be amortised over 1 year
- Any deficit between 85% and 95% of the technical provisions will be amortised over 3 years
- Any deficit between 95% and 100% of the technical provisions will be amortised over 5 years

Assumptions for the calculation of Ongoing Funding Obligation Contributions are:

- The technical provisions will continue to be calculated according to the method and assumptions as at set out in the Statement of Funding Principles dated 23 January 2020
- Future experience from the date of the actuarial valuation will be in line with the assumptions underlying the technical provisions as at that date, except that the future investment returns during the recovery period will be equal to 3.28% p.a. throughout
- Ongoing administration expenses and levies payable by the Plan are equal to £2,000,000 p.a.
- The above returns are assumed to apply to both existing assets and future contributions held in respect of final salary liabilities

Agreed contributions

Since the date of the actuarial valuation as at 31 October 2018, the Company paid £10,700,000 into the Plan in April 2019.

In respect of amortisation of deficit and future accrual of benefits, the Company is not required to pay any further contributions.

This is because the Trustee and the Company anticipate that over the period the new schedule of contributions is in place, the April 2019 contribution, together with investment returns will be sufficient to meet the cost of benefits in excess of Salary Sacrifice Funding Obligation Contributions being earned and the funding shortfall without any further Company contributions being required.

The actual Ongoing Funding Obligation Contributions paid will be recalculated each 31 October.

The Company will also pay Salary Sacrifice Funding Obligation Contributions.

Member contributions will continue at various rates as specified in the schedule of contributions, with DC AVCs payable in addition.

The contributions above are set out in a new schedule of contributions. As agreed, my certification of the schedule of contributions will be based on the position at the effective date of the actuarial valuation.

Projections

I estimate that, by the next actuarial valuation, these contributions will have:

- Increased the technical provisions funding level to about 102%
- Increased the solvency level to about 80%

These estimates assume that:

- The experience of the Plan between the two actuarial valuation dates is in line with the assumptions underlying the technical provisions and recovery plan (including that the return on the Plan's assets is as set out above
- The assumptions underlying the technical provisions and solvency measures remain as set out above

Next steps

Actions required to finalise the actuarial valuation process are summarised below.

The next steps are:

- For the Trustee to provide a copy of this report to the Company within 7 days
- To submit the actuarial valuation summary and supporting documentation to the Pensions Regulator via Exchange
- To provide a summary funding statement to members by 30 April 2020 i.e. within 18 months of the actuarial valuation date

Checklist

The actuarial valuation process is complete when all of the following have been agreed and are in place:

- This scheme funding report, including my certification of the technical provisions
- Recovery plan
- Schedule of contributions, including my actuarial certification of the adequacy of the schedule of contributions

Appendix A – Legal framework and alternative presentation

Legal framework

This report is produced in compliance with:

- General Rule 4.2 of the Rules
- Section 224 of the Pensions Act 2004
- The terms of the Scheme Actuary Agreement effective from 1 October 2006 between the Trustee and me, on the understanding that it is solely for the benefit of the addressee

Alternative presentation including defined contribution benefits

Defined contribution benefits (i.e. DC AVCs) amounted to £14.3M at the actuarial valuation date. If these benefits are included in the actuarial valuation:

- The value of the assets is £1,677.9M
- The technical provisions are £1,680.7M (funding level of 99.8%)
- The value of the solvency liabilities is £2,144.4M (solvency ratio 78.2%)

Appendix B – Membership data

The results in this report are based on membership data which is summarised below.

Active members	Number	Average age	Total Annual Salaries (£000 pa)	Average Annual Salaries (£ pa)	Average service (years)
2015	376	52	25,680	68,297	26
2018	190	53	13,859	72,946	27

Deferred members	Number	Average age	Total pension (£000 pa)	Average pension (£ pa)
2015	2,677	53	28,857	10,780
2018	2,547	55	28,525	11,199

Pensioners	Number	Average age	Total pension (£000 pa)	Average pension (£ pa)
2015	1,192	67	17,653	14,809
2018	1,619	67	24,179	14,935

- The average service for active members includes any transferred-in service
- The deferred pension amounts shown above include revaluations up to the actuarial valuation date
- The pensioners include dependants including dependent children
- Average age figures shown are un-weighted
- The data is correct at 31 July of the relevant year, but note that the 2015 data was adjusted to allow for 47 members who became deferred on 1 September 2015 as a result of having their employment transferred to the HP Inc group of companies. The 2018 data excludes 18 members who transferred out of the Plan after 31 July 2018 and before 1 November 2018.

I have conducted high level checks on the membership data provided and I am satisfied with its adequacy for the purpose of this actuarial valuation.

Appendix C – Benefits Valued

A summary of the key details of the Plan benefits considered in this actuarial valuation is set out below.

The Plan benefit structure is summarised below. Different benefit structures apply for some members, in particular members who left pensionable service in the past.

HP Member Benefit Structure

Normal Pension Date	A member's 60 th birthday.
Pensionable Salary	Fixed at date of joining and each following 1 February as being equal to Basic Salary less 1.5 times single person's annual State basic pension.
Pensionable Service	Complete years and months of Company service as a member of the Plan (subject to a maximum of 40 years).
Final Pensionable Salary	<p>Final Pensionable Salary means:</p> <ul style="list-style-type: none">a) in the case of a Member who leaves Pensionable Service at or after age 60, the highest annual average of the Member's Pensionable Salaries on any 3 consecutive Renewal Dates in the 10 years ending on the date of leaving Pensionable Service;b) in the case of a Member who leaves Pensionable Service aged 58 or 59, as (a) above, but assuming that the 10 year period ended on the Member's 60th birthday and that the Member's Pensionable Salary remained unchanged from the date of leaving Pensionable Service until his or her 60th birthday; andc) in the case of a Member who leaves Pensionable Service before age 58, the greater of (a) above and the Member's Pensionable Salary at the date of leaving Pensionable Service. <p>However, in respect of pension attributable to Pensionable Service from 1 December 2006, Final Pensionable Salary means the greater of:</p> <ul style="list-style-type: none">i) the highest annual average of a Member's Pensionable Salaries on any 3 consecutive Renewal Dates in the 10 years ending on the date of leaving Pensionable Service; andii) the Member's Pensionable Salary at the date of leaving Pensionable Service.

Final Basic Salary

Final Basic Salary means:

- a) on leaving Pensionable Service at or after age 60, the highest annual average of a Member's Basic Salaries in respect of any 3 consecutive years in the 10 years ending on the date of leaving Pensionable Service;
- b) on leaving Pensionable Service aged 58 or 59, as (a) above, but the 10 year period will always end on the Member's 60th birthday and the Member's Basic Salary will be deemed unchanged from the date of leaving Pensionable Service until his 60th birthday;
- c) in the case of a Member who leaves Pensionable Service before age 58, the greater of (a) above and the Member's Basic Salary at the date of leaving Pensionable Service.

However, in respect of pension attributable to Pensionable Service from 1 December 2006, Final Basic Salary means the greater of:

- i. the highest annual average of a Member's Basic Salaries in respect of any 3 consecutive years in the 10 years ending on the date of leaving Pensionable Service; and
- ii. the Member's Basic Salary at the date of leaving Pensionable Service.

Final Reckonable Salary

Highest average of member's Pensionable Salary at any three consecutive 1 February dates in 10 years, before leaving Pensionable Service.

Normal retirement pension

For members paying higher rate contributions, annual pension of the greater of:

- (i) $\frac{1}{50}$ * Final Pensionable Salary * Pensionable Service, and
- (ii) $\frac{1}{70}$ * Final Basic Salary * Pensionable Service

For members who choose to pay lower contributions, a range of lower accrual rates apply.

Death after retirement

A spouse's pension of 60% of the member's pension that would have been payable if the member had not taken a commutation lump sum. Dependants' and children's pensions may also be payable.

Death in service

A spouse's pension of 36% of the member's Basic Salary. Dependants' and children's pensions may also be payable. The lump sum payable on death in service is provided from a separate trust.

Death in deferment

A spouse's pension of 1/160th of member's Final Reckonable Salary for each year and complete month of pensionable service from 6 April 1978 revalued to the date of death. For that part of service after 1 April 1997 the spouse's pension will be subject to a minimum of 1/160th of 90% of band earnings averaged over three years for each year and complete month of pensionable service revalued to the date of death.

Pension increases in payment

Pensions relating to pensionable service from 1 April 1997 receive increases whilst in payment in line with annual increases in the Retail Prices Index, up to a maximum of 5% p.a. (known as Limited Price Indexation).

The elements of pensions relating to pensionable service before 1 April 1997 (in excess of GMP) are subject to guaranteed pension increases at a proportion of the rate of two-thirds of the lesser of the annual increase in the Retail Prices Index and 5% p.a. The proportion is 100% for members who retired before 1 April 1997; 0% for members who left service before 1 April 1997 but did not retire until after that date; and between 0% and 100% for members who were in service on 1 April 1997.

GMP accrued between 6 April 1988 and 5 April 1997 receives increases in line statutory GMP Increase Orders (currently increase in the Consumer Prices Index up to a maximum of 3% p.a.).

Pension increases in deferment

GMP is increased in deferment at a fixed rate depending on the date of leaving service. This rate applies until age 65 (men) or 60 (women).

Benefits in excess of GMP are increased in line with statutory deferred increase orders, subject to a maximum increase of 5% p.a. for the period of deferment in respect of service prior to 6 April 2009. For members who left service before 1 January 1991, increases to non-GMP benefit may be below this level. For service after 5 April 2009, the maximum increase is 2.5% p.a. for the period of deferment.

BoI Member Benefit Structure

Normal Pension Date

A member's 60th birthday.

Pensionable Service

Service after joining the Bank of Ireland Section plus pensionable service credits arising from the transfer from the Bank of Ireland schemes.

Pension Benefit

All members are deferred or have pensions in payment, so the pensions at date of leaving or date of retirement have all been calculated.

Death after retirement

If the member dies within five years of starting to receive a pension, a lump sum payment will be made equal to the pension payments which would have been made during the remainder of the five year period (disregarding any future increases).

Spouse's pension of 60% of the member's pre-commutation pension; Pension may be payable to surviving children.

Death before retirement

A spouse's pension of 60% of the member's pension accrued after 6 April 1978 revalued to the date of death, and a lump sum benefit of a refund of member contributions and AVCs.

Pension increases in payment

Pensions relating to pensionable service on or after 6 April 1997 receive statutory increases in payment. These are increased in line with an inflation index determined by the Government; currently the Consumer Prices Index is used. The increases are subject to a maximum of 5% per annum in respect of pensionable service from 6 April 1997 to 5 April 2005 and a maximum of 2.5% per annum for pensionable service from 6 April 2005.

Pensions in excess of GMP, relating to pensionable service before 6 April 1997, receive increases in line with the Retail Prices Index up to a maximum of 3% per annum.

GMP accrued between 6 April 1988 and 5 April 1997 is increased in line with GMP Increase Orders (currently in line with the Consumer Prices Index up to a maximum of 3% per annum).

Pension increases in deferment

GMP is increased in deferment at a fixed rate depending on the date of leaving service. This rate applies until age 65 (men) or 60 (women).

Benefits in excess of GMP are increased in line with statutory deferred increase orders, subject to maximum increase of 5% per annum for the period of deferment.

For service after 5 April 2009, the maximum increase is 2.5% p.a. for the period of deferment.

Medas Member Benefit Structure

Normal Pension Date

A member's 60th birthday.

Pension benefit

All members are deferred or have pensions in payment, so the pensions at date of leaving or date of retirement have all been calculated.

Death after retirement

If a member dies within five years of retiring, a lump sum equal to the balance of five years' pension payments; plus

A dependant's pension equal to 2/3rds of the pension the member would have been receiving at date of death had they not commuted any pension for cash at retirement.

Death in deferment

A dependant's pension equal to 2/3rds of pension at date of leaving revalued to date of death. Pension may be payable to surviving children.

Pension increases in payment

Pensions accrued in excess of GMP receive increases whilst in payment in line with annual increases in the Retail Prices Index, up to a maximum of 5% p.a.

GMP accrued between 6 April 1988 and 5 April 1997 receives increases in line statutory GMP Increase Orders (currently increase in the Consumer Prices Index up to a maximum of 3% p.a.)

Pension increases in deferment

GMP is increased in deferment at a fixed rate depending on the date of leaving service. This rate applies until age 65 (men) or 60 (women).

Benefits in excess of GMP are increased in line with annual pension increases, subject to a minimum of statutory deferred pension increases.

EDS Member Benefit Structure

Normal Pension Date

A member's 65th birthday.

Pensionable Service

Number of years and complete months of contributory membership in the Plan (including service credits where applicable), subject to a maximum of 40 years.

Pensionable Salary (pre 6 April 2010)

Basic Salary on 6 April each year plus the average of any allowances, emoluments and bonuses in the preceding 3 years, less the lower earnings limit in force on the same date.

New Pensionable Salary (post 6 April 2010)

Basic Salary on 6 April each year less the lower earnings limit in force on the same date.

Final Pensionable Salary (FPS)

The greater of:
Pensionable Salary on the 6 April prior to NRD or earlier date of retirement or leaving, and;
Average of the best 3 consecutive years' Pensionable Salaries in the ten years prior to NRD or earlier date of retirement or leaving.

New Final Pensionable Salary (New FPS)

The greater of:
New Pensionable Salary on the 6 April prior to NRD or earlier date of retirement or leaving, and;
Average of the best 3 consecutive years' New Pensionable Salaries in the ten years prior to NRD or earlier date of retirement or leaving.

Normal retirement pension

Pension accrued pre-6 April 2005:
- $1.7\% \times \text{FPS} \times \text{Pensionable Service}$

Pension accrued post 6 April 2005 and pre-6 April 2010:
- $\text{Accrual rate} \times \text{FPS} \times \text{Pensionable Service}$

Pension accrued post 6 April 2010:
- $\text{Accrual rate} \times \text{New FPS} \times \text{Pensionable Service}$

There are different accrual rates according to category of membership. i.e.

Lower rate members: 1.2%

Middle rate members: 1.45%

Higher rate members: 1.7%

2016 rate members: 0.95%

Death after retirement

If the member dies within five years of starting to receive a pension, a lump sum payment will be made equal to the pension payments which would have been made during the remainder of the five year period (disregarding any future increases).

Spouse's pension of 50% of the member's pre-commutation pension. Dependants' and children's pensions may also be payable.

Death in service

A spouse's pension equal to 30% of the member's Pensionable Salary.

Child's pension of 10% of Pensionable Salary for each child up to a maximum of three. The pensions are doubled if there is no qualifying spouse at date of death.

A return of the member's contributions.

Death in deferment

A spouse's pension of 50% of the member's pension revalued to the date of death and a return of the member's contributions

Pension increases in payment

Pensions relating to pensionable service from 1 April 1997 receive increases whilst in payment in line with annual increases in the Retail Prices Index. The increases are subject to a maximum of 5% per annum in respect of pensionable service from 6 April 1997 to 5 April 2006 and a maximum of 2.5% per annum for pensionable service from 6 April 2006.

Pensions in excess of GMP, relating to pensionable service before 6 April 1997, receive increases of 3% per annum.

GMP accrued between 6 April 1988 and 5 April 1997 is increased in line with GMP Increase Orders (currently in line with the Consumer Prices Index up to a maximum of 3% per annum).

Pension increases in deferment

GMP is increased in deferment at a fixed rate depending on the date of leaving service. This rate applies until age 65 (men) or 60 (women).

Benefits in excess of GMP are increased in line with statutory deferred increase orders, subject to maximum increase of 5% per annum for the period of deferment.

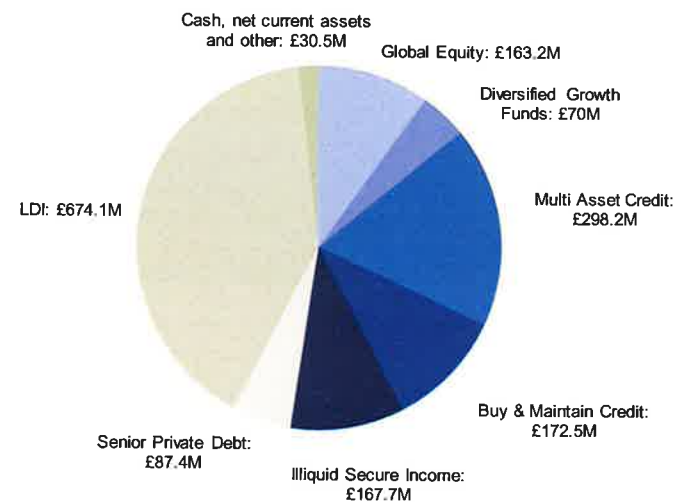
For service after 5 April 2009, the maximum increase is 2.5% p.a. for the period of deferment.

Appendix D – Assets

Information on the assets used in this actuarial valuation is covered here.

The audited accounts for the Plan for the year ended 31 October 2018 show the assets were £1,677.9M, of which £14.3M relate to DC AVC assets.

The chart shows how the balance of the assets of £1,663.6M was broadly invested as at the actuarial valuation date.



Appendix E – Assumptions for solvency estimate

The key assumptions used in calculating the solvency estimate are summarised below.

The solvency estimate has been calculated in line with statutory requirements. I have taken into account the investment strategies that a life assurance company is likely to use to back its annuity business and the resulting pricing we would expect to see under the market conditions at the valuation date, taking into account the size of the Plan.

However, this estimate is only a guide. The true position can only be established by conducting a competitive buy-out auction and fully defining the scope and likely cost of a wind-up process for the Plan.

The basis used is described on the next page.

Solvency estimate

This considers the position if:

- The Plan were discontinued on the actuarial valuation date
- Member benefits were crystallised and, for active members, were based on their Pensionable Service and Salary at the actuarial valuation date
- Discretionary benefits were suspended permanently
- The assets were used to buy immediate and deferred annuities from an insurer

The solvency estimate is a regulatory requirement and also provides a useful benchmark against which the Trustee and others can assess the prudence of other funding measures.

Assumption	Solvency
Pre-retirement discount rate	Aon Bulk Annuity Market Monitor yield curve for non-pensioners
Post-retirement discount rate	Aon Bulk Annuity Market Monitor yield curve for pensioners or non-pensioners as appropriate
RPI inflation	Break-even RPI curve (swap pricing)
CPI inflation	RPI inflation less 0.6% pa
Salary inflation	N/A
Post-retirement mortality assumption - base table	SAPS S2 Light with scaling factors of 98% for males and 91% for females
Post-retirement mortality assumption - projection	CMI 2017 core projections with Sk=8.0 and long-term rate of 1.75% p.a.
Pre-retirement mortality assumption	70% of AX92 Ultimate tables
Withdrawals	None
Early Retirements	None
Commutation	None

Family details	<p>95% of male members are assumed to be married at retirement or earlier death. It is assumed that the member is three years older than his spouse and that the spouse is female</p> <p>77% of female members are assumed to be married at retirement or earlier death. It is assumed that the member is one year younger than the spouse and that the spouse is male</p>
Expenses	<p>The reserve for expenses allows for deductions to allow for the cost of forced sales of assets, an allowance for the management expenses associated with winding up and an estimate of the per member charges expected to be levied by an insurance company on buy-out.</p> <p>All of these allowances for expenses are presented as additions to the liabilities as the regulations require the assets to be shown at audited market value.</p>
Discretionary benefits	No allowance made
GMP equalisation reserve	0.3% of liabilities

Appendix F – Certificate of technical provisions

Actuarial certificate given for the purposes of Regulation 7(4)(a) of the Occupational Pension Schemes (Scheme Funding) Regulations 2005

Hewlett-Packard Limited Retirement Benefits Plan: Hewlett-Packard Section

Calculation of technical provisions

I certify that, in my opinion, the calculation of the scheme's technical provisions as at 31 October 2018 is made in accordance with regulations under section 222 of the Pensions Act 2004. The calculation uses a method and assumptions determined by the Trustee of the Plan and set out in the Statement of Funding Principles dated 23 January 2020.

Signature:

Date:

23/1/20

Name:

David Eteen FIA

Address:

Aon Hewitt Limited
Verulam Point
Station Way
St Albans
AL1 5HE

Qualification:

Fellow of the Institute and Faculty of
Actuaries

Appendix G – Glossary

Control period

This is the period of time from the valuation date that is considered when calculating the future service cost for schemes still open to accrual.

Deficit

This is the funding target less the value of assets. If the value of assets is greater than the funding target, then the difference is called the surplus.

Discount rate

This is used to place a present value on a future payment. A 'risk-free' discount rate is usually derived from the investment return achievable by investing in government gilt-edged stock. A discount rate higher than the 'risk-free' rate is often used to allow for some of the extra investment return that is expected by investing in assets other than gilts.

Discretionary benefits

Benefits that are not guaranteed under a scheme's rules and which are only granted to members at the discretion of the trustees and/or the sponsor.

Funding level

This is the ratio of the value of assets to the funding target.

Funding target

An assessment of the present value of the benefits that will be paid from the scheme in the future, normally based on pensionable service prior to the valuation date. Often, the funding target is equal to the technical provisions.

Gilt yield curve

The term-dependent yields on gilts derived from fixed-interest gilts published by the Bank of England which is extended by Aon Hewitt for years beyond those published.

Guaranteed Minimum Pensions (GMPs)

Most schemes that were contracted out of the State Earnings Related Pension Scheme (SERPS) before April 1997 have to provide a pension for service before that date at least equal to the Guaranteed Minimum Pension (GMP). This is approximately equal to the SERPS pension that the member would have earned had the scheme not been contracted out. GMPs ceased to build up on 6 April 1997 when the legislation changed.

Hedging

A liability is said to be hedged if a scheme holds investments which respond in the same way as it does to changes in the risk being hedged (eg interest rates or inflation). Gilts and swaps are examples of investments which are commonly used to hedge liabilities.

Limited Price Indexation (LPI)

The Pensions Act 1995 required schemes to provide a minimum level of annual increase to pensions in payment. The minimum level is the smaller of 5% and the increase in inflation* and applies to the pension earned from 6 April 1997 to 5 April 2005. With effect from 6 April 2005, the cap for statutorily required LPI for future service was reduced from 5% to 2.5%. *Until 2010, inflation for the purpose of this minimum was defined with reference to changes in the Retail Prices Index. From 2011, inflation was defined with reference to changes in the Consumer Prices Index.

Pension Protection Fund (PPF)

The PPF was established with effect from 6 April 2005. The PPF will normally take over the assets of a pension scheme in the event of its employer becoming insolvent and the scheme having insufficient assets to provide the PPF benefits. The PPF will not provide the scheme benefits in full. The PPF is financed by a levy on most defined benefit pension schemes.

The PPF benefits are broadly 100% of benefits for pensioners over normal retirement age and 90% of benefits up to a cap for all other members. Pension increases granted on benefits are at lower levels than apply in many schemes, in

particular, benefits earned before 6 April 1997 would not be given any pension increases within the PPF.

Present value

Actuarial valuations involve projections of pay, pensions and other benefits into the future. To express the value of the projected benefits in terms of a cash amount at the valuation date, the projected amounts are discounted back to the valuation date by a discount rate. This value is known as the present value. For example, if the discount rate was 6% a year and if we had to pay a lump sum of £1,060 in one year's time the present value would be £1,000.

Projected Unit Method

One of the common methods used by actuaries to calculate actuarial liabilities and contribution rates. This method allows for full projected future increases to pay through to retirement or withdrawal.

Prudent

Prudent assumptions are assumptions that, if a scheme continues on an ongoing basis, are more likely to overstate than understate the amount of money actually required to meet the cost of the benefits.

Recovery plan

Where a valuation shows a funding shortfall against the technical provisions, trustees must prepare a recovery plan setting out how they plan to meet the statutory funding objective.

RPI inflation curve

The term-dependent RPI inflation expectations derived from fixed-interest and index-linked gilts published by the Bank of England which is extended by Aon for years beyond those published.

Schedule of contributions

Trustees of pension schemes must prepare and maintain a schedule of contributions. This shows the dates and amounts of contributions due from the employer and members. Under the Pensions Act 2004 the schedule must be put in place within 15 months of the valuation date.

Solvency ratio

This is the ratio of the market value of a scheme's assets to the estimated cost of securing a scheme's liabilities in the event of the discontinuance of the scheme.

The Statement of Funding Principles

The Pensions Act 2004 requires trustees to prepare (and from time to time review and if necessary revise) a written statement of their policy for securing that the statutory funding objective is met. This is referred to as a statement of funding principles.

Statutory estimate of solvency

This is the difference between the market value of a scheme's assets and the estimated cost of securing a scheme's liabilities in the event of the discontinuance of the scheme.

Statutory funding objective

Under the Pensions Act 2004, every scheme is subject to the statutory funding objective, which is to have sufficient and appropriate assets to cover its technical provisions.

Surplus

This is the value of assets less the funding target. If the funding target is greater than the value of assets, then the difference is called a deficit.

Technical provisions

This is the present value of the benefits members are entitled to based on pensionable service to the valuation date, assessed using the assumptions agreed between a scheme's trustees and the company. It generally allows for projected future increases to pay through to retirement or date of leaving service.

Transfer value

Members generally have a legal right to transfer their benefits to another pension arrangement before they retire. In taking a transfer, members give up their benefits in a scheme, and a sum of money (called the transfer value) is paid into another approved pension scheme; this is used to provide pension benefits on the terms offered in that scheme.

Withdrawal

Members may leave a pension scheme before their normal retirement age (typically because they leave employment with the sponsor). When they do so, their accrued benefits will no longer be linked to future salary increases (where applicable), and will instead be linked to future inflation. Benefits will still be payable at normal retirement age.