



Cabinet Office

# Civil Service People Survey 2016 Technical Guide

November 2016

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# Civil Service People Survey: technical summary

## Coverage

The Civil Service People Survey covers 99% of Civil Servants. In 2016, 98 Civil Service organisations took part in the survey (listed on page 4).

The survey operates a census approach with all staff working in participating organisations invited to take part. While small random samples could provide accurate organisation-level summaries we take a census approach to demonstrate that the opinion of everyone who works in the Civil Service has equal value.

The census approach allows us to produce around 10,000 reports for managers and teams so that action can be taken at all of the most appropriate levels across the Civil Service.

A total of 431,706 people were invited to take part in the 2016 survey, and 279,708 participated – a response rate of 65% (55 more people than last year and the same response rate). Half of participating organisations achieved a response rate of 78% or greater (up 3pp from 75% last year).

These figures do not reconcile with ONS published headcounts as organisations such as the MOD and FCO include their overseas local staff who are not counted in ONS statistics. The MOD also include military staff undertaking civilian/Civil Service roles.

## Coordination & delivery of the survey

The survey is coordinated by the Employee Engagement Team in the Cabinet Office. The team let a contract centrally on behalf of the Civil Service and act as the central liaison between the independent survey supplier and participating organisations. The 2016 survey was delivered by ORC International.

## Questionnaire

The questionnaire used in the Civil Service People Survey is standardised across all participating organisations, although it has aspects that allow for local variation to ensure that relevant terms are used in each organisation (for example the name of the organisation or the term for senior managers). Page 8 shows the core attitudinal measures asked in the survey.

## Data collection methodology

The questionnaire is a self-completion process, with 97% completing online and 3% on paper. Completion of all questions in the survey are voluntary. Fieldwork for the 2016 survey began on 3rd October and was completed on 31st October.

## Analysis

The framework underpinning the analysis of the Civil Service People Survey is based on understanding the levels of employee engagement within the Civil Service and the experiences of work which influence engagement.

The five questions we use to measure engagement are outlined on page 13 alongside their rationale, while page 14 shows how we use those five questions to calculate the engagement index.

The main measures used to talk about the nine engagement driver themes are the “theme scores”, this is the average percentage positive response to the theme’s constituent questions. Pages 16-20 explain our engagement driver analysis which shows how these themes are related to engagement.

# Participating organisations in 2016

## Attorney General's departments

Attorney General's Office  
Crown Prosecution Service  
HM Crown Prosecution Service Inspectorate  
Serious Fraud Office

## Business, Energy & Industrial Strategy

Department for Business, Energy & Industrial Strategy (excluding agencies)  
Acas  
Companies House  
Competition and Markets Authority  
Intellectual Property Office  
Land Registry  
Met Office  
The Insolvency Service

## Cabinet Office

Cabinet Office (excluding agencies)  
Crown Commercial Service  
Civil Service HR

## Charity Commission

## Communities and Local Government

Department for Communities and Local Government (excluding agencies)  
Planning Inspectorate

## Culture, Media & Sport

Department for Culture, Media & Sport (excluding agencies)  
The Royal Parks  
The National Archives

## Defence

Ministry of Defence  
Defence Equipment & Support  
Defence Electronics and Components Agency  
Dstl  
UK Hydrographic Office

## Department for Exiting the European Union

## Department for International Development

## Department for International Trade

## Education<sup>1</sup>

Department for Education  
Skills Funding Agency

## Environment, Food & Rural Affairs

Department for Environment, Food & Rural Affairs (excluding agencies)  
Animal and Plant Health Agency  
Centre for Environment, Fisheries and Aquaculture Science  
Rural Payments Agency  
Veterinary Medicines Directorate

## Estyn

## Food Standards Agency

## Foreign & Commonwealth Office

Foreign & Commonwealth Office (excluding agencies)  
FCO Services  
Wilton Park

## Government Actuary's Department

## Government Legal Department

## Health

Department of Health (excluding agencies)  
Medicines and Healthcare products Regulatory Agency  
Public Health England

## HM Inspectorate of Constabulary

## HM Revenue & Customs

HM Revenue & Customs  
Valuation Office Agency

## HM Treasury and Chancellor's departments

HM Treasury  
Government Internal Audit Agency  
UK Debt Management Office

## Home Office<sup>2</sup>

Home Office: Policy and Enablers  
Home Office: Border Force  
Home Office: Immigration Enforcement  
Home Office: UK Visas and Immigration  
HM Passport Office

## Justice<sup>2</sup>

Ministry of Justice (excluding agencies)  
Criminal Injuries Compensation Authority  
HM Courts and Tribunals Service  
HM Prison Service  
Legal Aid Agency  
MoJ Arms Length Bodies  
National Offender Management Service (HQ)  
National Probation Service  
Office of the Public Guardian

## National Crime Agency

## National Savings and Investments

## Office of Rail and Road

## Ofgem

## Ofqual

## Ofsted

## Scottish Government

Scottish Government (excluding agencies)  
Accountant in Bankruptcy  
Crown Office and Procurator Fiscal Service  
Disclosure Scotland  
Education Scotland  
Food Standards Scotland  
National Records of Scotland  
Office of the Scottish Charity Regulator  
Registers of Scotland  
Revenue Scotland  
Scottish Courts and Tribunal Service  
Scottish Prison Service  
Scottish Public Pensions Agency  
Student Awards Agency for Scotland  
Transport Scotland

## Scotland Office, Office of the Advocate General, Wales Office and Northern Ireland Office<sup>1</sup>

## Transport

Department for Transport (excluding agencies)  
Driver and Vehicle Licensing Agency  
Driver and Vehicle Standards Agency  
Maritime and Coastguard Agency  
Vehicle Certification Agency

## UK Export Finance

## UK Statistics Authority<sup>2</sup>

UK Statistics Authority  
Office for National Statistics

## Work and Pensions

Department for Work and Pensions  
Health and Safety Executive

## Notes

1. The following sets of organisations participate in a 'joint-survey', that is where all the organisations take part in the same version of the Civil Service People Survey and therefore are treated as one organisation for analysis and reporting of the survey results.

- The Department for Education and its executive agencies (excluding the Skills Funding Agency)
- The Scotland Office and Office of the Advocate General, the Wales Office, and the Northern Ireland Office

2. The operational directorates of these organisations undertake their own versions of the Civil Service People Survey and therefore are treated as separate organisations for analysis and reporting of the survey results. However, combined scores for the 'Home Office Group', 'Ministry of Justice (including agencies)' and 'UK Statistics Authority (including ONS)', which contain all directorates are also presented.

# The core questionnaire

# Structure of the CSPS core questionnaire

The core questionnaire includes 63 questions about perceptions of work. Using a technique called factor analysis these have been identified as fitting into 10 distinct themes. Factor analysis identifies the statistical relationships between different questions, and illustrates how these questions are manifestations of different experiences of work.

The question “Do you have a good line manager?” would be difficult for respondents to answer as they will need to provide an overall assessment of many different aspects of their line manager’s competencies and behaviour. Instead we ask a range of questions about line manager competency that can then provide a more accurate picture of the respondent’s perceptions of their line manager.

An example of where factor analysis illustrates the underlying relationships between the questions is in the question “I have the skills I need to do my job effectively”. At first glance this may seem to be a question about learning and development - the factor analysis of the CSPS dataset shows that this is more closely related to other questions about resources and workload than questions about learning and development.

Beyond the attitudinal questions, the questionnaire also includes questions on future working intentions, job/work related demographics, personal characteristics and wellbeing. Where possible these use the harmonised questions for government social surveys recommended by the ONS (see <https://www.ons.gov.uk/methodology/programmesand services/harmonisationprogramme> for further details). This approach ensures that the CSPS results can be compared to other surveys of the wider labour market and general population.

# Developing the core questionnaire

A number of pathfinder studies were conducted with Civil Service organisations between 2007 and 2008. These were used to inform the development of a core questionnaire for a pilot of the single survey approach. The questionnaire used in the pilot was a pragmatic harmonisation of previous questionnaires used in staff surveys by Civil Service organisations, and also covered key areas identified by previous studies of employee engagement.

The core questionnaire was developed following the pilot survey in consultation with survey managers and analysts across all participating organisations. This development process consisted of a substantial review of the core questionnaire to ensure it used plain English, and covered all aspects required to measure engagement. The proposed questionnaire was then subjected to cognitive testing<sup>1</sup> to ensure that the questions were easily understood by respondents.

The majority of the core questionnaire has remained consistent since 2009: this means that participating organisations have trend data, and that the questionnaire continues to measure employee engagement in the Civil Service and the experiences of work that can affect it. There have, however, been some changes to the questionnaire, which are outlined below.

There were no changes to the wording of the core attitudinal questions between 2009 and 2010, however following analysis of the 2009 results a few questions were moved to more appropriate themes. In 2011 an additional question was added to the 'Taking action' section, which asks if staff thought effective action had taken place since the last survey.

Following a pilot with five organisations in the 2011 survey, since 2012, we have included questions on subjective wellbeing. They are the four questions being used by the Office for National Statistics as part of their Measuring National Wellbeing programme:

- Overall, how satisfied are you with your life nowadays?
- Overall, to what extent do you think the things you do in your life are worthwhile?
- Overall, how happy did you feel yesterday?
- Overall, how anxious did you feel yesterday?

The wellbeing questions are measured on an 11-point scale of 0 to 10, where 0 means not at all and 10 means completely. This is the same as in the Measuring National Wellbeing programme. This differs from the rest of the core questionnaire which is arranged around a 5 point scale which ranges from strongly agree to strongly disagree.

Five questions on organisational culture were added to the core questionnaire in 2012. They were included to help measure the desired cultural outcomes of the Civil Service Reform Plan. One of the questions was removed in 2016 as stakeholder feedback suggested that it offered little insight and removing it would reduce questionnaire length, while having minimal impact on the time series.

In 2015, eight questions related to the Leadership Statement were added to measure perceptions of Civil Service leaders. This section was reduced to two questions in 2016 as analysis of the 2015 results revealed that respondents tend to answer all questions about their manager in the same way and all questions about senior managers in the same way, meaning we could reduce the length of the section, without losing insight.

Depending on how respondents answer the remaining Leadership statement questions (B62 and B63), follow up questions are asked.

Those who answered 'strongly disagree', 'disagree' or 'neither agree nor disagree' in the online survey to B62 and B63 are asked: "*List up to three things that [senior managers/managers] in [your organisation] could do to demonstrate the behaviours set out in the Leadership Statement*"; followed by three text boxes for short answers.

Those who answered 'strongly agree' or 'agree' to B62 and B63 are asked: "*List up to three things [senior managers/managers] in [your organisation] do to demonstrate the behaviours set out in the Leadership Statement*"; again, followed by three text boxes for short answers.

The follow up questions were not asked in paper surveys.

<sup>1</sup> Cognitive testing is a research technique which involves taking respondents through the questionnaire and then asking them to explain what they thought the question was about and why they responded to the question in the way that they did.

# Core questionnaire

The 2016 core questionnaire comprises a series of attitudinal measures (below) which are rated on a strongly agree to strongly disagree scale. The principal measure for these questions is the “percent positive” which is the proportion responding “strongly agree” or “agree” to a given measure.

The Engagement Index is calculated differently (see slide 13). The core questionnaire also includes questions on discrimination, bullying and harassment, wellbeing, future intentions, the Civil Service Code and demographic questions.

## My work

- B01. I am interested in my work
- B02. I am sufficiently challenged by my work
- B03. My work gives me a sense of personal accomplishment
- B04. I feel involved in the decisions that affect my work
- B05. I have a choice in deciding how I do my work

## Organisational objectives and purpose

- B06. I have a clear understanding of [my organisation's] purpose
- B07. I have a clear understanding of [my organisation's] objectives
- B08. I understand how my work contributes to [my organisation's] objectives

## My manager

- B09. My manager motivates me to be more effective in my job
- B10. My manager is considerate of my life outside work
- B11. My manager is open to my ideas
- B12. My manager helps me to understand how I contribute to [my organisation's] objectives
- B13. Overall, I have confidence in the decisions made by my manager
- B14. My manager recognises when I have done my job well
- B15. I receive regular feedback on my performance
- B16. The feedback I receive helps me to improve my performance
- B17. I think that my performance is evaluated fairly
- B18. Poor performance is dealt with effectively in my team

## My team

- B19. The people in my team can be relied upon to help when things get difficult in my job
- B20. The people in my team work together to find ways to improve the service we provide
- B21. The people in my team are encouraged to come up with new and better ways of doing things

## Learning and development

- B22. I am able to access the right learning and development opportunities when I need to
- B23. Learning and development activities I have completed in the past 12 months have helped to improve my performance
- B24. There are opportunities for me to develop my career in [my organisation]
- B25. Learning and development activities I have completed while working for [my organisation] are helping me to develop my career

## Inclusion and fair treatment

- B26. I am treated fairly at work
- B27. I am treated with respect by the people I work with
- B28. I feel valued for the work I do
- B29. I think that [my organisation] respects individual differences (e.g. cultures, working styles, backgrounds, ideas, etc)

## Resources and workload

- B30. In my job, I am clear what is expected of me
- B31. I get the information I need to do my job well
- B32. I have clear work objectives
- B33. I have the skills I need to do my job effectively
- B34. I have the tools I need to do my job effectively
- B35. I have an acceptable workload
- B36. I achieve a good balance between my work life and my private life

## Pay and benefits

- B37. I feel that my pay adequately reflects my performance
- B38. I am satisfied with the total benefits package
- B39. Compared to people doing a similar job in other organisations I feel my pay is reasonable

## Leadership and managing change

- B40. I feel that [my organisation] as a whole is managed well
- B41. [Senior managers] in [my organisation] are sufficiently visible
- B42. I believe the actions of [senior managers] are consistent with [my organisation's] values
- B43. I believe that [the board has] a clear vision for the future of [my organisation]
- B44. Overall, I have confidence in the decisions made by [my organisation's] senior managers
- B45. I feel that change is managed well in [my organisation]
- B46. When changes are made in [my organisation] they are usually for the better
- B47. [My organisation] keeps me informed about matters that affect me
- B48. I have the opportunity to contribute my views before decisions are made that affect me
- B49. I think it is safe to challenge the way things are done in [my organisation]

## Employee engagement

- B50. I am proud when I tell others I am part of [my organisation]
- B51. I would recommend [my organisation] as a great place to work
- B52. I feel a strong personal attachment to [my organisation]
- B53. [My organisation] inspires me to do the best in my job
- B54. [My organisation] motivates me to help it achieve its objectives

## Taking action

- B55. I believe that [senior managers] in [my organisation] will take action on the results from this survey
- B56. I believe that managers where I work will take action on the results from this survey
- B57. Where I work, I think effective action has been taken on the results of the last survey

## Organisational culture

- B58. I am trusted to carry out my job effectively
- B59. I believe I would be supported if I try a new idea, even if it may not work
- B60. When I talk about my organisation I say "we" rather than "they"
- B61. I have some really good friendships at work

## Leadership statement

- B62. [Senior managers] in [my organisation] actively role model the behaviours set out in the Civil Service Leadership Statement
- B63. My manager actively role models the behaviours set out in the Civil Service Leadership Statement

# Employee engagement

*Engaged employees are committed to their organisation's goals and values, and are motivated to contribute to organisational success*

# External evidence shows clear business benefits from improving levels of engagement

There is an ever increasing body of evidence demonstrating the business benefit of employee engagement in both the private and public sector.

Engage for Success, a cross-economy movement of business, charity and public sector leaders, compiled assessments of the evidence in 2012 and 2016.

In their second update of this work, eleven case studies highlight:

- Positive links between Engagement and Productivity measures
- Positive links between Engagement and Customers
- Positive links between Engagement and People measures

The case studies come from a range of sectors and the learning points are applicable beyond organisation size and sector.

Two key lessons to be learned from the case studies are that these organisations:

1. Used their engagement survey as a prompt to promote discussion throughout the organisation about what is creating, and what is getting in the way of, higher levels of employee engagement.
2. Followed through to make the required changes actually happen.

Examples of the evidence include:

## Successful M&S stores linked to more engaging managers

Marks & Spencer is a global retailer of food, clothing and home products. There are over 1,300 M&S stores worldwide and the company employs 83,000 people.

M&S analyse the link between engagement levels and organisational performance to understand the impact of having a highly engaged workforce.

2015 survey results identified strong correlations between employee engagement and customer satisfaction, and between employee engagement and employee absence:

- Stores in the top quartile of engagement scores are more than twice as likely to achieve the highest Service Score rating compared to stores in the bottom quartile.
- Absence levels of stores in the top quartile of engagement scores were 25% lower than those in the bottom quartile.

## RBS has clear evidence that higher engagement builds stronger teams

The RBS Group is a large international banking and financial services company, with over 30 million customers and over 100,000 employees.

RBS has been tracking the effectiveness of employee engagement for 13 years and The latest study of 370 business units showed the difference employee engagement can make to business performance, customer service and employee wellbeing. Comparing delivery across units with high and low engagement scores, the top 10% of business units:

- Delivered twice the business performance of the bottom 10%;
- Incurred half the voluntary turnover;
- Had customer service scores 5% higher; and,
- Had absence rates 2% lower.

The Evidence: report of the Employee Engagement Taskforce 'Nailing the Evidence' workgroup (2012): <http://engageforsuccess.org/wp-content/uploads/2015/09/The-Evidence.pdf>  
The Evidence: Case Study Heroes and Engagement Data Daemons The evidence for better organisation performance and workforce wellbeing through employee engagement initiatives (2016): <http://engageforsuccess.org/wp-content/uploads/2016/04/EFS-Evidence-Paper-2016.pdf>

# Employee Engagement & Wellbeing: Civil Service Success Stories

Thinking about employee engagement in the Civil Service, the Employee Engagement Team used three years of anonymous People Survey results to identify teams across the Civil Service with consistently high engagement scores, or teams who have exhibited strong improvements, to interview to try and understand what they are doing to generate engagement..

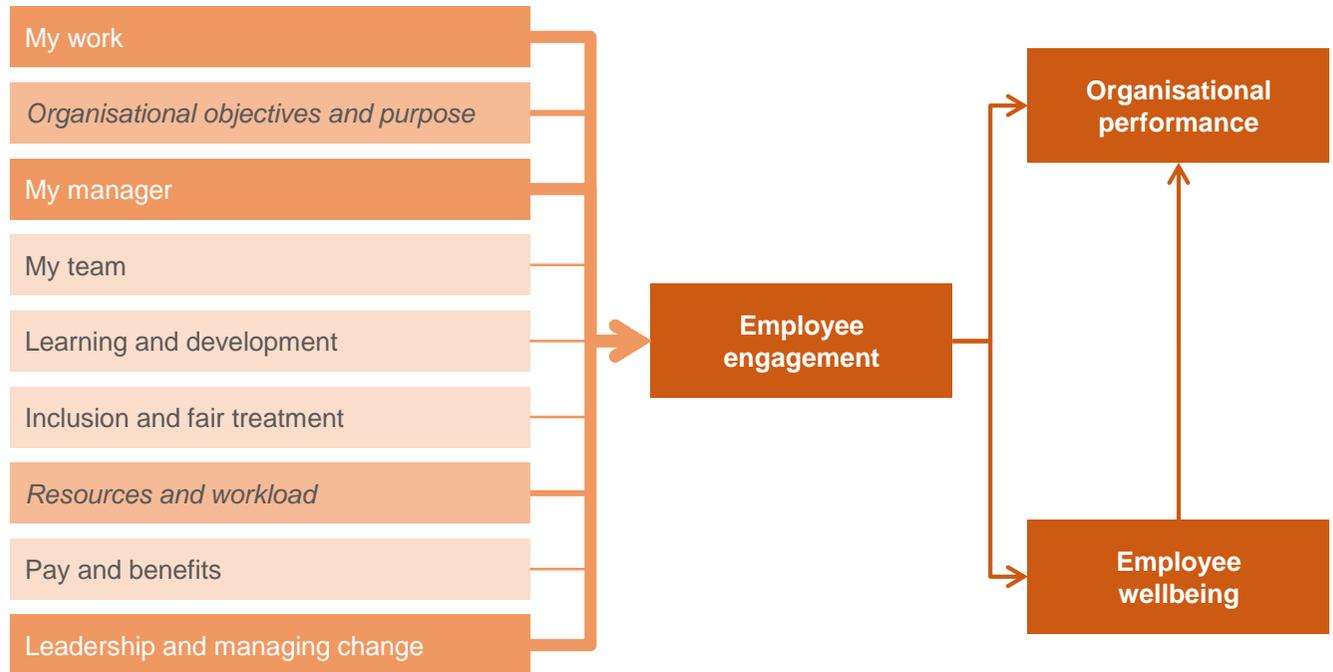
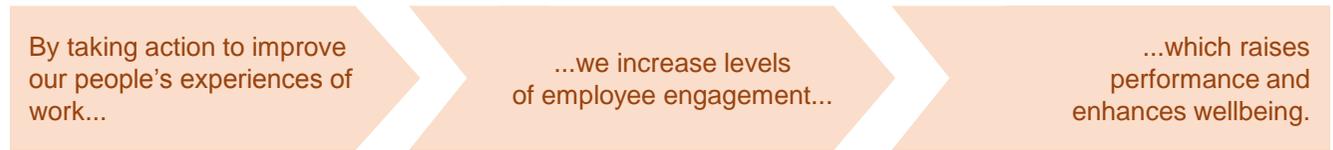
These interviews led to sixteen case studies, which showcase the approaches taken and outcomes experienced.

Published on gov.uk these case studies are designed to help managers and leaders in the Civil Service to identify ideas to apply to their teams.

Whether the teams worked in policy, defence, engineering or operational delivery our interviews revealed eight common themes or ideas for building an engaged team with high wellbeing.

1. **Leaders who welcome feedback** and are passionate, visible and collaborative really help to drive great engagement and wellbeing scores.
2. **Prioritise feedback, involvement and consultation.** Regular two-way feedback which is acted upon helps drive an engaged culture. People really value credit where it's due and reward and recognition for good work.
3. **Encourage innovation and creativity.** Creating a non-judgmental atmosphere for ideas has been a real theme for a number of our teams – openly listen to and encourage new ideas, try new approaches, and expose your staff and yourself to new challenges.
4. **Make time for frontline exposure.** Seeing the impact of their work on the delivery of public services really helps teams connect with their organisational purpose and objectives.
5. **Challenge negative behaviours** – have zero tolerance for bullying and harassment and an open-door policy for reporting it.
6. **Support flexible working approaches** – and allow people to be open about non-work pressures.
7. **Build team spirit** – ensure contact especially across geographical boundaries. Create time for people to talk – consider development days, volunteering together and skill-sharing opportunities.
8. **Take action on your People Survey results.** Highly engaged teams had taken the time to study and understand their results, and developed staff-led action plans.

# Our analytical framework focuses on how employee engagement levels can be improved



The results of the People Survey have shown consistently that **Leadership and managing change** is the strongest driver of employee engagement in the Civil Service, followed by the **My work** and **My manager** themes. The *Organisational objectives and purpose* and *Resources and workload* themes are also strongly associated with changes in levels of employee engagement.

The themes are listed above in the order they appear in the survey.

# Measuring employee engagement in the Civil Service

Employee engagement is a workplace approach designed to ensure that employees are committed to their organisation's goals and values, motivated to contribute to organisational success, and are able at the same time to enhance their own sense of well-being.

There is no single definition of employee engagement or standard set of questions. In the Civil Service People Survey we use five questions measuring pride, advocacy, attachment, inspiration and motivation.

Aspect	Question	Rationale
Pride	B50. I am proud when I tell others I am part of [my organisation]	An engaged employee feels proud to be associated with their organisation, by feeling part of it rather than just "working for" it
Advocacy	B51. I would recommend [my organisation] as a great place to work	An engaged employee will be an advocate of their organisation and the way it works
Attachment	B52. I feel a strong personal attachment to [my organisation]	An engaged employee has a strong, and emotional, sense of belonging to their organisation
Inspiration	B53. [My organisation] inspires me to do the best in my job	An engaged employee will contribute their best, and it is important that their organisation plays a role in inspiring this
Motivation	B54. [My organisation] motivates me to help it achieve its objectives	An engaged employee is committed to ensuring their organisation is successful in what it sets out to do

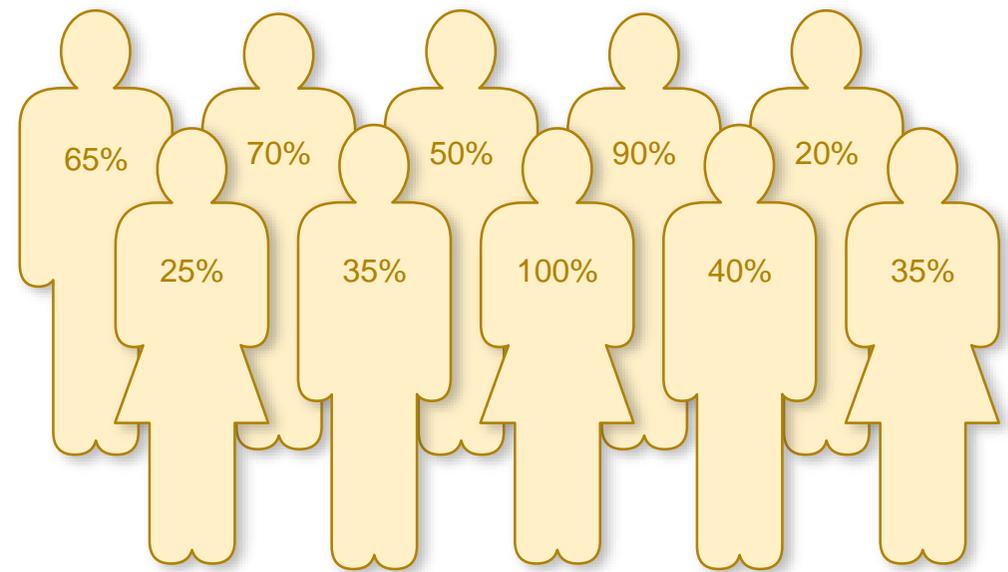
# Calculating the engagement index

Like all of the other core attitudinal questions in the CSPS, each of the engagement questions is asked using a five-point agreement scale.

For each respondent an engagement score is calculated as the average score across the five questions where strongly disagree is equivalent to 0, disagree is equivalent to 25, neither agree nor disagree is equivalent to 50, agree is equivalent to 75 and strongly agree is equivalent to 100. Like all questions in the survey this cannot be linked back to named individuals.

The engagement index is then calculated as the average engagement score in the organisation, or selected sub-group. This approach means that a score of 100 is equivalent to all respondents in an organisation or group saying strongly agree to all five engagement questions, while a score of 0 is equivalent to all respondents in an organisation or group saying strongly disagree to all five engagement questions.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Score
Weight:	100%	75%	50%	25%	0%	
I am proud when I tell others I am part of [my organisation]	✓					100%
I would recommend [my organisation] as a great place to work		✓				75%
I feel a strong personal attachment to [my organisation]		✓				75%
[My organisation] inspires me to do the best in my job			✓			50%
[My organisation] motivates me to help it achieve its objectives				✓		25%
						Total: 325%
						Respondent engagement score (total / 5): 65%



Sum of engagement scores (65+25+70+35+50+100+90+40+20+35): 530%

**Engagement index for the group (530 / 10): 53%**

# Comparing the “index” scores to “percent positive” scores

Because the engagement index is calculated using the whole response scale two groups with the same percent positive scores may have different engagement index scores. For example comparing one year’s results to another, or as illustrated in the example below comparing two organisations (or units).

In the example below two organisations (A and B) have 50% of respondents saying strongly agree or agree. However the index score for the two organisations is 49% in A and 63% in B.

The index score gives a stronger weight to strongly agree responses than agree responses, and also gives stronger weight to neutral responses than to disagree or strongly disagree responses.

Figure 1 shows the distribution of the responses in each organisation. Table 1 shows how the calculations on the previous page translate these response profiles into index scores. Finally Figure 2 contrasts the percent positive scores between the two organisations with their index scores.

Figure 1: Organisational results

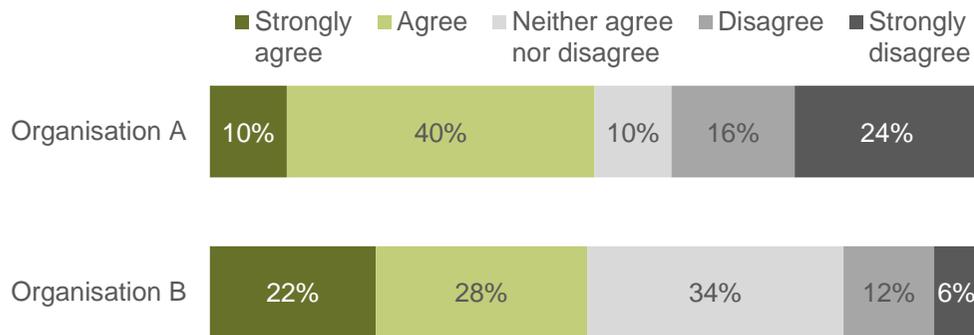


Figure 2: Comparison of percent positive and index approaches

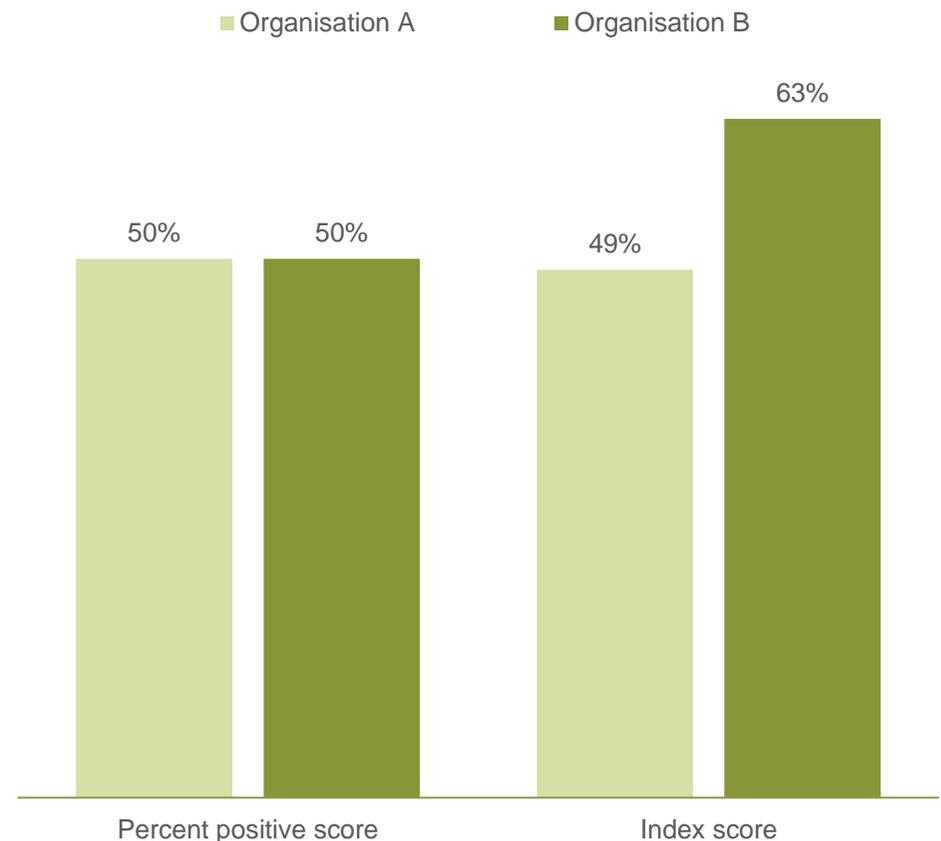


Table 1: Calculating the index score

	Weight	Organisation A		Organisation B	
		%	Score	%	Score
Strongly agree	100%	10%	10%	22%	22%
Agree	75%	40%	30%	28%	21%
Neither agree nor disagree	50%	10%	5%	34%	17%
Disagree	25%	16%	4%	12%	3%
Strongly disagree	0%	24%	0%	6%	0%
<b>Total</b>		<b>100%</b>	<b>49%</b>	<b>100%</b>	<b>63%</b>

# Driver analysis

# Using driver analysis to understand what influences employee engagement

The engagement questions measure emotional outcomes but do not give us the insight to know how to improve or maintain engagement – for example, the question on advocacy may tell us that you do not recommend the organisation you work for as a great place to work, but it doesn't tell us how to make it a great place to work.

Questions B01-B49 measure a range of different aspects of the experience of working in the Civil Service. We use a statistical technique called factor analysis to look at the relationships between these measures to identify statistical groups of questions.

Factor analysis of the 2009 People Survey, and repeated on subsequent surveys, shows that these 49 questions can be grouped into nine distinct themes:

- My work – *experiences of the day-to-day work*
- Organisational objectives and purpose – *understanding of what the organisation is there to do*
- My manager – *employees' relationship with their immediate supervisor*
- My team – *employees' relationship with their immediate colleagues*
- Learning and development – *access to and quality of L&D opportunities*
- Inclusion and fair treatment – *feeling valued and respected for who they are*
- Resources and workload – *having the tools and time to do the job*
- Pay and benefits – *general perceptions and comparability of pay*
- Leadership and managing change – *relationship with senior managers and the ability of the organisation to manage change effectively*

Our analytical framework theorises that improving these experiences of work has a positive impact on engagement. Using a combination of factor analysis and multiple linear regression we are able to look at the partial effects of the nine experience themes against engagement – a technique called key driver analysis.

The factor analysis that groups the questions into the nine themes also produces a score for each respondent for that theme. These scores are used as the independent variables in a multiple regression model against each respondent's engagement score. This produces a coefficient of the relationship between engagement and the theme.

# Factor analysis

Factor analysis is a statistical technique we use to group the survey questions into themes and explores the structural relationships between the questions and underlying aspects called factors. The output from the factor analysis shows the strength of these relationships, and we use the dominant association to group the questions into themes. However, most questions will also have weak associations with the other factors.

For example, while this analysis indicates that the question “My manager helps me to understand how I contribute to [my organisation’s objectives]” is strongly related to the line management factor, it also shows that the question has a weak association with some of the other survey factors (such as leadership and managing change and my work). As the strongest relationship is with line management the question is grouped in the line management factor.

The weak associations between questions and the other factors mean that the theme scores (calculated from just the question responses in the theme) are a slightly uncertain representation of the real opinion about that theme because of the small influences of

other factors in the questions. As these influences are very small we only use the strongest relationship to group questions into themes.

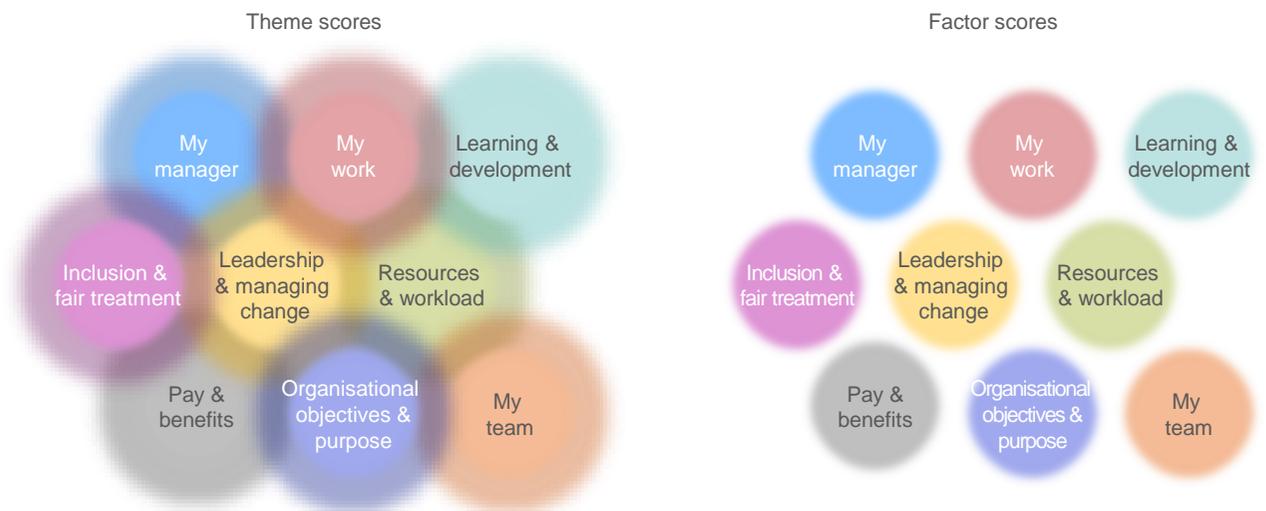
However, these weak relationships affect the reliability of the driver analysis if we use the theme scores. Therefore, we use scores produced by the factor analysis, “factor scores”, that take account of the weak relationships and ensure that scores for each factor are not correlated with each other. These factor scores remain highly correlated with their associated theme score, so we do not report factor scores in the standard reports to minimise confusion for report users.

Essentially, we can think of the factor scores as representing the thick arrows between questions and themes in Figure A and having eliminated the thinner arrows representing the very small influences other themes have on theme scores. Figure B demonstrates the conceptual difference between the two types of score when they are being used in regression analysis.

Figure A: Example of relationships between survey themes and survey questions



Figure B: Comparison of theme scores and factor scores when used in regression analysis



# Conducting and reporting the driver analysis

Now that we have produced the factor scores the regression analysis can be run. This is a statistical technique that looks at the association between engagement and the factor scores. Telling us which survey themes are closely related to engagement. The CSPS reporting focuses on the regression coefficients, which tells us the strength of the relationship between engagement and the survey themes.

The coefficient shows the change in engagement scores for a change of 1 in the factor score for a survey theme. Because of the statistical techniques involved it is not possible to calculate this into the effect on engagement of particular questions. Figure A illustrates how the coefficients represent the strength of relationship between the factor scores and engagement.

As the coefficients are based on factor scores they are not directly intuitive for report users. Furthermore, the precise value of the coefficient is not essential for action planning, a coefficient of 0.24 is broadly similar to a coefficient of 0.27. Therefore, the CSPS reporting uses a set of rating bar icons to provide an indicator of the general magnitude of the relationship between the theme and engagement. Figure B shows how the rating bar icons are shown in the highlights reports.

The following thresholds are used for the rating bars:

- 4 bars: coefficient is 0.4 or greater
- 3 bars: coefficient is between 0.2 and 0.4
- 2 bars: coefficient is between 0.1 and 0.2
- 1 bar: coefficient is less than 0.1
- 0 bars: driver analysis has not identified a statistically significant relationship between this theme and levels of employee engagement

Figure A: Graphical representation of regression coefficients

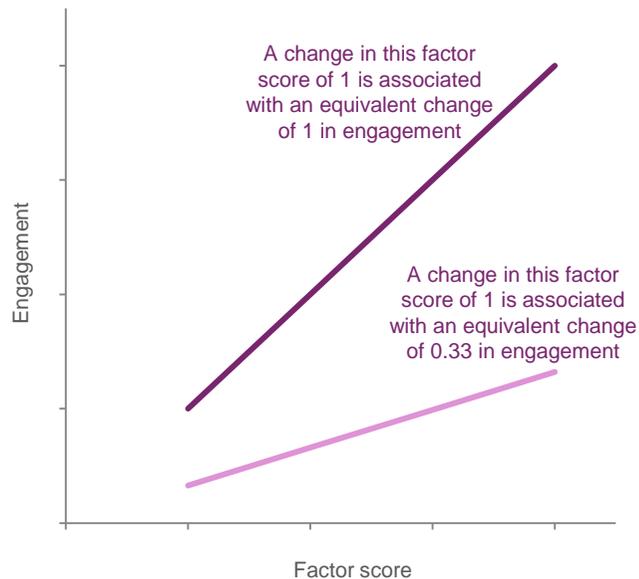
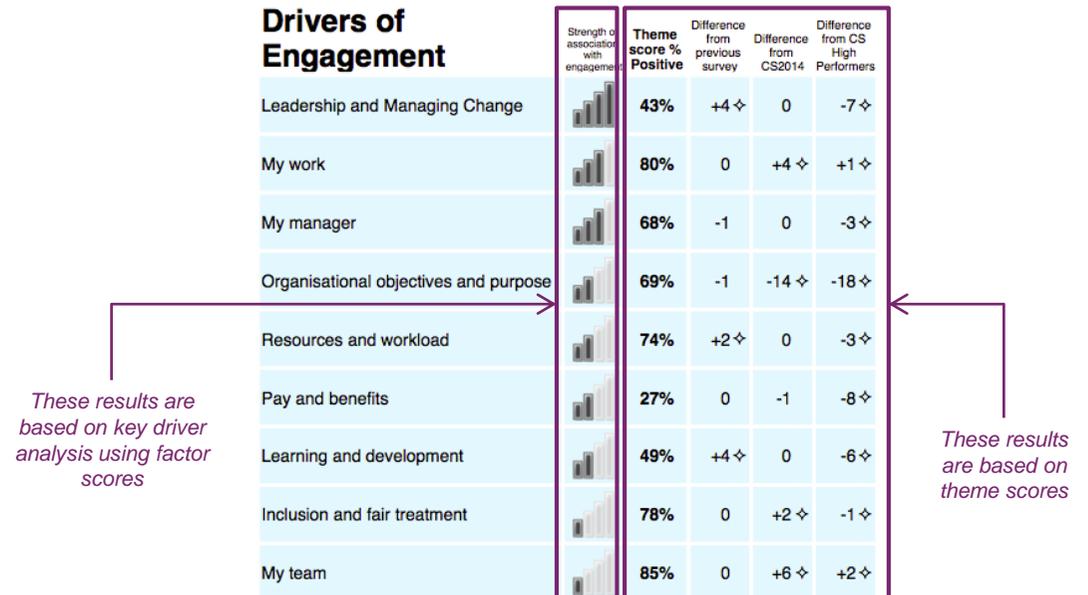


Figure B: Driver analysis results as presented in the "highlights report"



# Criteria for receiving driver analysis

The statistical techniques involved in running the driver require large sample sizes (the number of respondents), and at a minimum 100 responses. Based on analysis of the 2009 CSPA results, a threshold of 500 responses is set for units below organisation level, and units with less than 500 responses will not have driver analysis carried out in the automated reporting. At the organisation overall level and the first tier of the organisation's hierarchy the threshold is relaxed to 150 responses to ensure each organisation has the chance to obtain driver analysis unique to their organisation. Organisations with between 100 and 149 responses will also have driver analysis run if they have a response rate of at least 80%.

The statistical techniques used in driver analysis also demand a strict interpretation of what is and is not a survey response. The number of responses valid for driver analysis is typically smaller than the overall number of responses achieved by a unit. This is

because the driver analysis requires that an individual has answered all attitudinal questions in the survey, but a small number of respondents may not have felt able to answer one or two questions in the survey. Therefore some units near the thresholds may not receive their own driver analysis.

After the regression analysis is run the coefficients are checked to see if the analysis has output coefficients for at least three themes, this is to ensure that the analysis is meaningful for report users.

If any of the criteria are not met then the unit will inherit their parent unit's driver analysis. In organisations with large hierarchies this may mean that the driver analysis shown in a report is that for its grandparent (the parent unit of the selected unit's parent). At the organisation overall level the reporting unit will inherit the driver analysis from the Civil Service overall.

Figure A: Flowchart showing criteria for receiving driver analysis

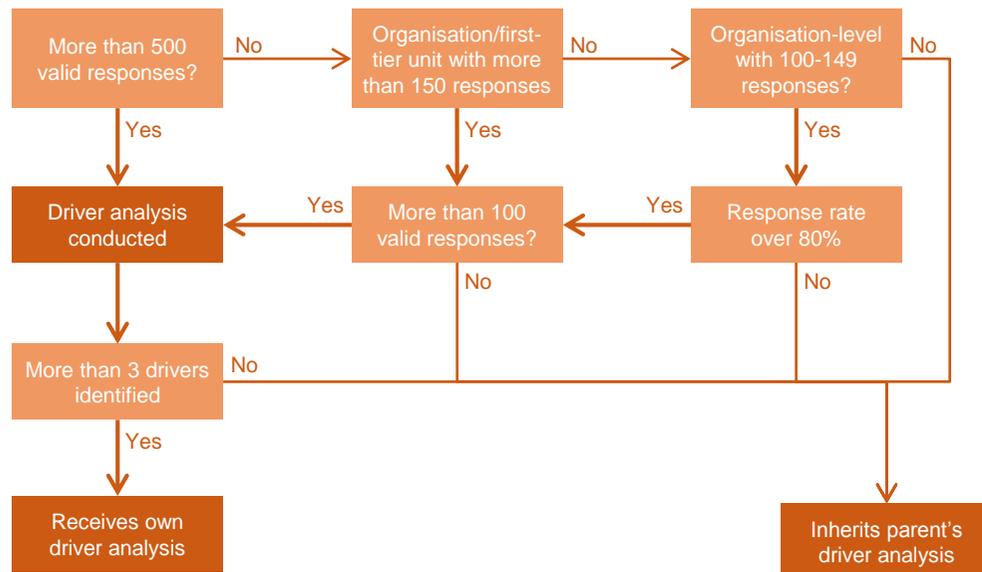


Figure B: Driver analysis results as presented in the "highlights report"

Drivers of Engagement	Strength of association with engagement	Theme score % Positive	Difference from previous survey	Difference from CS2014	Difference from CS High Performers
Leadership and Managing Change		43%	+4 $\diamond$	0	-7 $\diamond$
My work		80%	0	+4 $\diamond$	+1 $\diamond$
My manager		68%	-1	0	-3 $\diamond$
Organisational objectives and purpose		69%	-1	-14 $\diamond$	-18 $\diamond$
Resources and workload		74%	+2 $\diamond$	0	-3 $\diamond$
Pay and benefits		27%	0	-1	-8 $\diamond$
Learning and development		49%	+4 $\diamond$	0	-6 $\diamond$
Inclusion and fair treatment		78%	0	+2 $\diamond$	-1 $\diamond$
My team		85%	0	+6 $\diamond$	+2 $\diamond$

*These icons are affected by the inheritance rules*

*These results are not affected by the inheritance rules*

# Comparisons and significance testing

# Comparisons with previous or other surveys

While questions in the CSPA may appear similar to those used in previous surveys, users should be considerate of the effect that wording differences may have on the way in which an individual responds to the question. In some cases this effect will be relatively small, e.g. where the wording has been simplified but the concept remains the same. Comparisons to these questions are displayed in CSPA reporting but the question is flagged to ensure users are aware that previous surveys used an alternative wording.

In other situations it is not appropriate to make a direct comparison in the CSPA reporting. For example where a reference point has changed, such as from “senior managers” to “the SCS”, this definitional change may mean that respondents are not referring to the same group as they may have previously done and therefore the two results are not directly comparable. Alternatively a question may previously have measured two concepts, while the CSPA questions only measure one concept at a time and therefore it is not possible to compare the former question with the new questions.

Previous or other survey wording	CSPA 2016 survey wording	
I am clear what is expected of me in my job	In my job I am clear what is expected of me	✓
Difference caused by wording change unlikely to substantially affect the way people respond		
I have clear measurable work objectives	I have clear work objectives	*
Question concept still similar, but wording changes may affect the way people respond – flagged		
Senior managers in [my organisation] are sufficiently visible	The SCS in [my organisation] are sufficiently visible	✗
I am treated with fairness and respect	I am treated with respect by the people I work with	✗
Question concepts are different and are not comparable		

# Using statistical testing to compare sets of results

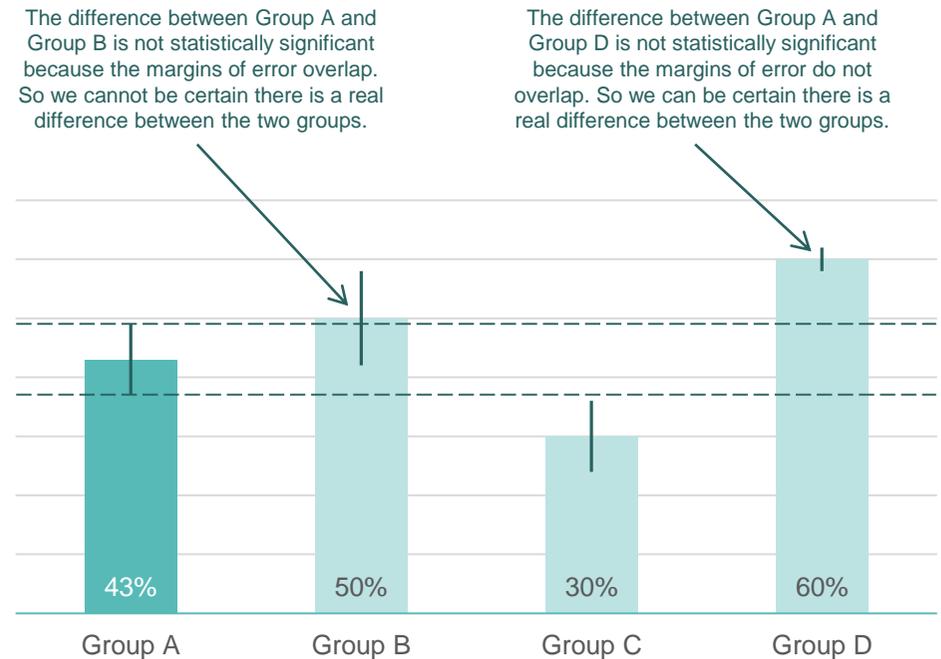
Unless an organisation or team has a 100% response rate, we have to take account of the fact we do not know the views of those who did not take part. In statistical terms this is called the “margin of error”.

When making comparisons between groups over time it is important not just to look at the absolute difference between the reported figures but also to consider the margin of error.

If the margins of error overlap then we cannot be confident that the difference between the two figures is a ‘real’ difference of opinion.

For example, take the situation outlined in the table and figure below. Here we see that the margin of error for Group A and Group B overlap and therefore we cannot be confident that there is a real difference of opinion between the two groups. However, for Group A and Group D the margins of error do not overlap and therefore we can be confident that there is a real difference between the two groups.

Unit	Headcount	Responses	% positive score	Margin of error
Group A	200	120 (60%)	43%	± 6%
Group B	150	80 (53%)	50%	± 8%
Group C	50	40 (80%)	30%	± 6%
Group D	500	375 (75%)	60%	± 2%



# Showing statistically significant differences in CSPS reporting products

Significance testing is used in the CSPS reporting to show whether the differences between a unit and comparisons are statistically significant. The reporting will show all differences, but for differences that are statistically significant the result will be flagged with a diamond symbol, ✧.

Survey proportions (the percent positive and theme scores) are tested using z-tests, while the engagement index is tested using the t-test. All tests are conducted at the 95% confidence level.

Statistical testing is used when comparing the following sets of results:

- A unit or organisation's 2016 scores against that unit or organisation's scores from previous years
- A unit against its parent, organisation or another unit's results
- A unit or organisation's scores against a Civil Service benchmark

	% Positive	Difference from previous survey	Difference from Cabinet Office
B04 I feel involved in the decisions that affect my work	78%	+4	+14 ✧
B05 I have a choice in deciding how I do my work	83%	+6	+2

A difference that is not statistically significant

A statistically significant difference

# Margin of error reference table

The CSPS reporting uses the t-test for the engagement index and z-tests for all other survey measures to test for statistical significance.

Comparisons between groups or over time use two-sample tests, while comparisons to benchmark scores use one-sample tests.

These are complex calculations that are based on the exact number of people responding and their results. The table below provides a reference for simple at-a-glance understanding of the margins of error. Like the significance tests in the reports the reference table uses the 95% confidence level.

For a given number of respondents results of 50% have the largest margin of error, the closer the figure is to 0% or 100% the smaller the margin of error. The margin of error also reduces as the number of respondents increases.

For example, for a group of 100 respondents a result of 50% has a margin of error of  $\pm 10$  percentage points, but for a result of 5% or 95% it is  $\pm 4$  percentage points. However, for a group of 1,000 respondents a result of 50% has an error of just  $\pm 3$  percentage points, and at 5% or 95% the margin of error is  $\pm 1$  percentage point.

Survey result proportion:

Number of respondents	50%	40% / 60%	30% / 70%	25% / 75%	20% / 80%	15% / 85%	10% / 90%	5% / 95%
50	$\pm 14$	$\pm 14$	$\pm 13$	$\pm 12$	$\pm 11$	$\pm 10$	$\pm 8$	$\pm 6$
100	$\pm 10$	$\pm 10$	$\pm 9$	$\pm 8$	$\pm 8$	$\pm 7$	$\pm 6$	$\pm 4$
150	$\pm 8$	$\pm 8$	$\pm 7$	$\pm 7$	$\pm 6$	$\pm 6$	$\pm 5$	$\pm 3$
200	$\pm 7$	$\pm 7$	$\pm 6$	$\pm 6$	$\pm 6$	$\pm 5$	$\pm 4$	$\pm 3$
250	$\pm 6$	$\pm 6$	$\pm 6$	$\pm 5$	$\pm 5$	$\pm 4$	$\pm 4$	$\pm 3$
500	$\pm 4$	$\pm 4$	$\pm 4$	$\pm 4$	$\pm 4$	$\pm 3$	$\pm 3$	$\pm 2$
750	$\pm 4$	$\pm 4$	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 2$	$\pm 2$
1,000	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 3$	$\pm 2$	$\pm 2$	$\pm 2$	$\pm 1$
1,500	$\pm 3$	$\pm 2$	$\pm 1$					
2,000	$\pm 2$	$\pm 2$	$\pm 2$	$\pm 2$	$\pm 2$	$\pm 2$	$\pm 1$	$\pm 1$
5,000	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$
10,000	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$\pm 1$	$< \pm 1$

# Rounding

# All results in CSPS reporting products are rounded to the nearest percentage point

Figures (notably percentages) are displayed as whole numbers for the ease of reading. To ensure the figures are as accurate as possible the rounding is applied at the last stage of calculation and figures are rounded to the nearest percentage point. Sometimes this will mean that the figures shown may not be identical if calculations are performed manually using the figures displayed in the report, however any difference would not be larger than plus or minus 1 percentage point.

For example results of 23.00% to 23.49% are displayed as 23%, while results of 23.50% to 23.99% are displayed as 24%. Therefore if you sum the percentages for all the response options to a question the figure may not sum to 100%, but may sum to 99% or 101%.

In Table A if we sum the displayed percentages for strongly agree and agree to calculate the percentage positive response as 47% (18% + 29%), but using the raw figures we calculate the result as 48%.

Similarly when comparing figures between different groups or benchmarks, the difference displayed in reporting may not be identical to that if the difference is calculated using the reported figures.

As shown in Table B, Group E has an engagement index score of 52.952% which rounds to 53% in their report, while Benchmark has a score of 58.495% which rounds to 58%. The difference between these two figures is 5.543, which is rounded up to 6 percentage points. If the calculation was carried out manually readers would calculate the difference as 5 percentage points (58 minus 53).

Table A: Demonstration of rounding when presenting question results

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total	Positive responses
Number of responses	103	166	176	96	24	565	269
Percent of responses	18.23%	29.38%	31.15%	16.99%	4.25%	100.00%	47.61%
Figure displayed in reporting	18%	29%	31%	17%	4%	99%	48%

Table B: Demonstration of rounding when calculating differences

	Group E	Benchmark	Difference (Group E - Benchmark)
Engagement Index	52.952%	58.495%	- 5.543
Figure displayed in reporting	53%	58%	- 6

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