JUNE 2018

PARLIAMENT STREET

partnership in policy

SMART GOVERNMENT
THE RISE OF THE DATA SCIENTIST

INTRODUCTION

Big data, big opportunity.

Once upon a time decision making for government, as with businesses, was formulated upon a mixture of experience, instinct and guesswork. The digitisation of information has changed all this, with a wealth of data now available to empower accurate decision making, based on reliable data sources.

The big data explosion presents huge opportunities for both the public and private sector. The race to capture, store and manage complex information to improve decision-making and drive confident financial planning means that businesses and government departments are setting increasingly higher standards of data management.

Recent research from Dresner Advisory Services has indicated that 53 per cent of companies are planning to implement big data analytics last year, a rise of 17 per cent in 2015. The visualisation of data is also becoming a major strategic objective for companies. Reporting, dashboards, advanced visualisation and data warehousing are now listed as some of the top five tech initiatives for delivering business intelligence programmes.

The use case for such technologies within central and local government is overwhelming.

Whether its empowering doctors and nurses to save lives in our NHS or using performance data to drive up exam results for disadvantaged children, there can be no delay in implementing big data Harnessing the true potential of this trend also requires a new breed of IT professionals that can combine digital skills with mathematical dexterity.

Enter the data scientist; the custodian of quality information management and an essential hire for any forward thinking organisation.

This report will examine the role data scientists play in modern government and how they can improve public services for the better,
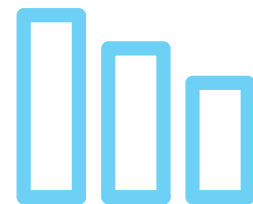
METHODOLOGY

An overview of our research approach

Parliament Street conducted interviews with several major government departments, interviewing data officers via the Freedom of Information (FOI) Act.

All interviews were conducted in May 2018 via email.

The departments which responded for this project were; The Department for Work and Pensions, The Department for Transport, The Department for Exiting the European Union and Ministry of Housing, Communities and Local Government.

DIGITAL GOVERNMENT

A roadmap to smarter government

Everyone benefits from smarter, more efficient public services. After over a decade of bad headlines around IT implementations, the UK government is at last making progress with some eye-catching tech deployments and impressive digital strategies.

There is a clear economic case for investing in the hiring and training of data scientists within government, and implementing analytics platforms.

Big data and data analytics are set to play a vital role in the UK's digital economy. It has been estimated that the industry will add £241 billion to UK GPD by 2020, creating 157,000 jobs in data science, statistics and mathematics.

Yet in the private sector, research has suggested that there are currently low levels of competent adoption. One survey suggested that only 18 per cent of companies in the UK have fully implemented a basic big data strategy. The same report suggested that the majority are at the 'experimentation stage' in this process.

The research we have conducted as part of this study indicates that many government departments are taking a bullish approach to investment in data scientists, with many increasing headcounts and budgets dramatically.
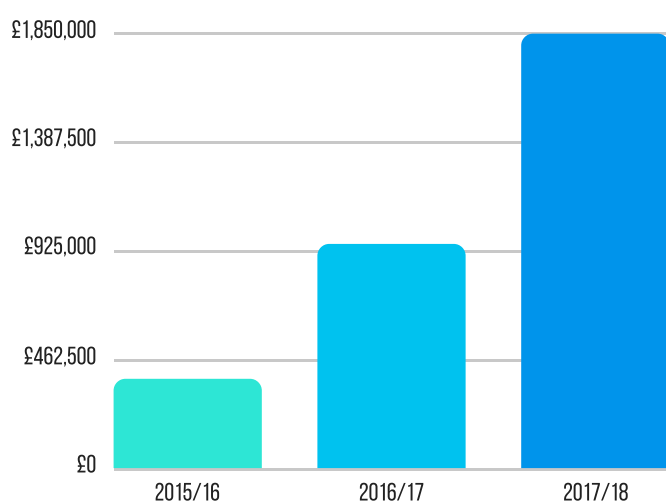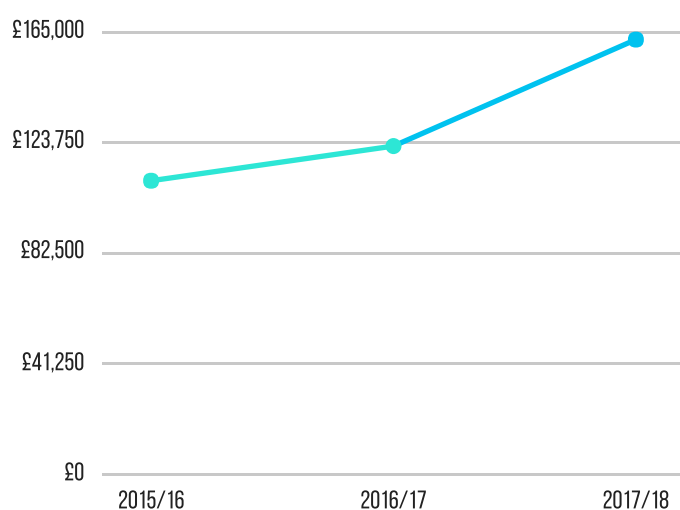
DIGITAL JOURNEY

A roadmap to smarter government

Department for Work and Pensions expenditure on data scientists over the last three financial years.

Department for Transport expenditure on data scientists over the last three financial years.

A recently published policy paper from the UK government stated, "The UK has already made good progress and the UN has recognised the UK as the world leader in digital government."

It goes on to state that central to this strategy is building the capability of government to not only design, develop and operate modern digital public services, but also to transform old government infrastructure. Through this we will make the government a digital organisation that is more responsive to our users' needs.

Our research team discovered that investment in data science within major government departments is accelerating.

The Department for Work and Pensions (DWP) reported a 400% increase in the number of data scientists it employs over the last three financial years, rising from six staff in 2015/16 to 30 staff in 2017/18.

Accordingly, staff salaries for data scientists at the DWP have increased from £379,553 in 2015/16 to £1,846,562 in 2017/18 over the three year timeframe, an increase of £1,467,009.

It is understood that the DWP in makes use of data science capabilities for a variety of measures, including management of benefits and financial administration as well as analysing claims.

The Department for Transport had significantly few staff and financial commitments in this area, reporting 'five or fewer' staff for each of the three financial years disclosed. In this time staff costs rose from £109,193 in 2015/16 to £161,894 in the financial year of 2017/18.

INCREASED VISIBILITY

Department of Health and Social Care expenditure on data scientists over the last three financial years.
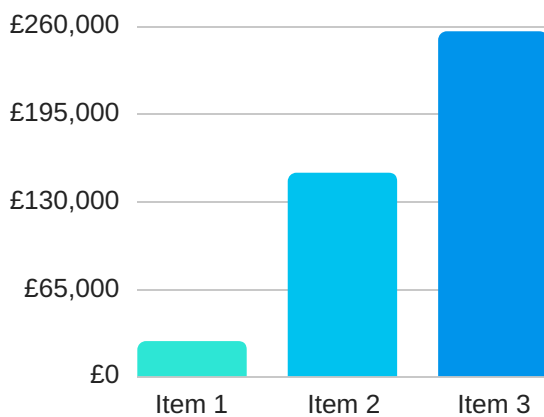
Ministry of Housing, Communities and Local Government expenditure on data scientists in the last financial year (17-18)

£3,725,172

In other departments we found a larger variance in expenditure. Interestingly departments tasked with managing health as well as communities and housing had significant budgets in this area.

The Department of Health and Social Care reported spending of just £26,000 on 'five or fewer' staff in the financial year of 2015/16. This increased significantly to £256,000 for 2017/18 with a declared headcount of nine data scientists.

The Ministry of Housing, Communities and Local Government declared that, "All 150 analysts within the Department have data management responsibilities to a great or lesser extent within their roles."

However the department singled out a total of 69 staff who have significant data management responsibilities in their day-to-day duties. This figure comprises of staff based in Data Analytics and Statistics Division and all statisticians across the Department.

The Department told us that it estimates the total bill for the 69 data science staff came to approximately £3,725,172 in the financial year of 2017/18.

The Department for Exiting the European Union told us that it had zero data scientists employed.

PLANNING AHEAD

Our research demonstrates that the UK government is currently making impressive progress around the recruitment of data scientists across many major departments. It is however important that departments recognise the need for upskilling the workforce at large with basic data awareness and analytics capabilities.

Recent research from Kyvos Insights has revealed that that big data and business intelligence skills are lacking. More than half of respondents in one survey (52 per cent) said their organisation lacks the skill set required to effectively implement BI on big data projects.

In addition, 57 per cent of organisations report that fewer than 50 employees use BI on big data in their daily work. These numbers need to increase if the government is going to get serious about its big data capabilities.

The same survey suggested that BI deployments have delivered noticeable return on investment (ROI) early in the process cycle.
More than half of these respondents from large businesses (54 percent) identified operational efficiency as a key return, while 43 per cent say it resulted in a reduction of costs.

Other notable benefits identified in the survey included increased customer satisfaction, 30 per cent, and more targeted marketing, 29 per cent.

RECOMMENDATIONS

1. Establish a national data science strategy

The UK digital skills crisis means that businesses and the government are grossly under resourced when it comes to getting access to the best and brightest data science graduates. To tackle this problem, the government should establish a national data science strategy, proving work experience placements and mentoring for degree-level candidates who are studying data science at University.

2. Create a cross-department career programme for data scientists

Data scientists should not be restricted to select departments and instead should have the opportunity through their employment contracts to work on other areas within the government. This approach will help build stronger relationships between members of the data science team and in turn lead to smarter, more effective strategies to improve the way government analyses and interprets data.

3. Increase hiring and salaries for data scientists

In the age of austerity, promoting budget increases may be an unpopular course of action, but with data science expertise, it is right and necessary. Big data analytics projects are already saving the private sector billions of pounds and it's time for the public sector to reap the same benefits. Investing in highly skilled data scientists and the latest BI software will help create a smarter, more efficient government and the sooner this happens, the better.