Science and Technology Facilities Council

A Study of the Career Paths of PPARC/STFC Funded PhD Students

Final Report

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Executive summary

The study was commissioned to update information on the career paths of PPARC / STFC PhD students collected from earlier studies in 1995 and 2003. All the studies have focussed on a cohort of students who completed their PhD 6-9 years ago and thus, should be well established in their career. This is different to many studies that look only at the first destinations of PhD students or the first 2-3 years of their career post PhD. The study shows that the majority of the respondents in the 2009 cohort are employed.

Table 1: Current status of 2009 respondents

The sectoral distribution of employment in 2009 is similar to the position in 1995. It is different to what was found in 2003. In 2003, the proportion of respondents working in the private sector was considerably higher than what has been found in 2009. It is interesting to consider the reasons for this.

One reason could be the effects of the recession particularly in the financial and business services sectors in which many PPARC / STFC PhD students are employed. However, this is not supported by the data from the job history section of the survey. This shows the proportion of respondents employed in the private sector as more or less stable over the last 2-3 years.
Another reason could be that more employment opportunities have been available for PhD students in universities and other types of research establishments in recent years, due to increased funding for education and scientific research. Since most people take up a PhD because of an interest in scientific research, it is understandable that more would choose a career in academic research if greater opportunities became available.

There is evidence to support this from the Institute of Physics Survey of Academic Appointments in Physics 2004-2008 (published in January 2010). The survey found a net gain of 231 staff members from 2004-2008, reflecting some 12% of the current community. It also found that the physics areas gaining most staff members over the five-year survey period were astronomy, astrophysics, cosmology, and space physics (net gain of 60 individuals) and high energy and particle physics (net gain of 51 individuals).

Thus, the implication is that if more academic research opportunities are available, more PhD students are likely to take-up these jobs and remain in academia. However, as demonstrated by all the surveys (but the 2003 survey in particular), there are many alternative job opportunities for PPARC / STFC PhD students that cannot, or do not want to, pursue a career in academic research.

**Employment in the Private Sector**

The majority of STFC / PPARC PhD students who work in the private sector are employed either in the business services sector (mainly in specialised information technology / software companies) and in the financial services sector. For example, in companies such as Barclays, Citi Group, HSBC, Goldman Sachs, Logica, IBM, Accenture, Deloitte and PWC. This has been the position since 1995 as shown overleaf.

These are high-value, knowledge-intensive sectors that are critical to the future competitiveness of the UK economy and the implication is that there is strong demand from
these sectors for people with the type of high-level computing, modelling, and quantitative skills that are developed through a STFC / PPARC PhD.

Table 3: Characteristics of private sector employment

<table>
<thead>
<tr>
<th>Sector</th>
<th>2009</th>
<th>2003</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business services</td>
<td>53%</td>
<td>48%</td>
<td>42%</td>
</tr>
<tr>
<td>Financial services</td>
<td>32%</td>
<td>24%</td>
<td>17%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>12%</td>
<td>13%</td>
<td>10%</td>
</tr>
<tr>
<td>Communications</td>
<td>8%</td>
<td>3%</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
<td>7%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Base: All respondents in the 2009, 2003, and 1995 studies employed in the private sector (excluding the self-employed).

Employment in the Public Sector (Outside Universities)

Approximately half of the respondents in this sector work for public sector research establishments, mainly outside the UK.

Figure 4: Characteristics of employment in the public sector (outside universities)
Employment in Universities

Many of those employed in the university sector have secured permanent faculty positions (lecturer, senior lecturer, other permanent teaching / research position, and other non-teaching / research position). The largest group employed in universities are post-doctoral researchers (44%). It is likely that they are employed on a mix of fixed-term and open-ended contracts.

Figure 5: Characteristics of employment in universities

![Pie chart showing employment distribution]

The full report provides further information on occupations, the location of employment, salary levels, skills gained from PhD training, and respondent views on the value of a PhD.
1. **Introduction**

**Background**

1.1 The STFC was formed as a new Research Council on 1 April 2007 through a merger of CCLRC and PPARC. One of STFC’s key roles is to support the development of skilled people for academic, professional, and other employment through postgraduate training. In 1995, the then PPARC commissioned a pioneering study to trace the career paths of former PhD students. It was the first study of its kind to look at longer term career outcomes from postgraduate training. An update of the study was undertaken in 2003.

**Study objectives**

1.2 This study was commissioned to update the information on career paths provided by the 1995 and 2003 studies. Its specific objectives are to:

- Update the information on career paths provided by the earlier studies
- Identify whether the distribution of former PPARC / STFC PhD graduates among employment sectors has changed in the period since the previous studies
- Establish how employable PPARC / STFC PhD graduates have been
- Identify whether the skills acquired in the course of a PPARC / STFC PhD have changed since the 1995 and 2003 studies, and whether there are any gaps between skills acquired and those required in subsequent employment
- Capture data on salaries post PhD
- Identify any differences in career paths and salaries between men and women

1.3 A further objective of the study is to compile a series of case study career profiles for former students. This is the subject of a separate report that has been submitted to STFC.

**Study approach**

1.4 The study was undertaken in the same way as the previous studies in 1995 and 2003. Details on the methodology are provided in Appendix I. The survey questionnaire is provided in Appendix II.

**Report structure**

1.5 The rest of this report is structured as follows:

- **Section 2**: provides information on the characteristics of former PhD students and the factors that motivated them to undertake a PhD

- **Section 3**: provides an overview of the career paths of former PhD students
• **Section 4**: gives further information on the types of jobs being undertaken by former PhD students in different sectors

• **Section 5**: presents the views of former PhD students on the value of a PhD training

• **Section 6**: uses time series data collected from the survey to analyse career paths over time.
2. **Respondent characteristics and motivation**

   **Age and gender**

2.1 Figure 2.1 shows the distribution of respondents by age. The majority of respondents are in their early thirties. 79% of respondents are men and 21% are women.

![Age distribution chart](chart.png)

**Figure 2.1 Age of respondents**

2.2 Figure 2.2 and Figure 2.3 (overleaf) show the subject and type of PhD undertaken by respondents.

**Type of PhD undertaken**
2.3 Almost a half of respondents describe their PhD as being related to Astronomy, Astrophysics, and Cosmology. Approximately a third of respondents describe their PhD as being in the field
of Particle Physics and 18% in the field of Planetary Science and Solar Research including Space Physics.

2.4 Overall, 53% of respondents describe their research as experimental, 33% as theoretically based, and 14% as an equal mix of both.

**PhD outcomes**

2.5 All but 9 (4%) of the 209 respondents have been awarded a PhD. None of the nine respondents who have not been awarded a PhD are still working towards submitting their research. The reasons why they did not submit their research are as follows:

- Switched from PhD to an MSc or MPhil (4 respondents)
- Not enjoying research and PhD did not fit with career goals anymore so decided to give up (3 respondents)
- No explanation provided (2 respondents).

**Comparison with respondent characteristics in previous surveys**

2.6 The characteristics of the 2009 cohort are quite similar to the characteristics of the 2003 and 1995 cohorts. There is not much difference in age or PhD outcomes. The only slight difference is that the 2009 cohort (21%) and the 2003 cohort (20%) have a higher proportion of women than the 1995 cohort (13%).

2.7 The characteristics of the 2009 cohort are similar to the 2003 and 1995 cohorts in terms of PhD subject area. There is a slight difference in the type of PhD undertaken by different cohorts. The proportion of 2009 respondents describing their PhD as mainly experimental is similar to 1995 (53%) but lower than in 2003 (60%). Similarly, the proportion of respondents describing their PhD as mainly theoretical is slightly higher in 2009 (34%) and 1995 (34%) than it was in 2003 (25%).

2.8 Since the cohorts are quite similar in terms of the characteristics of respondents, meaningful comparisons can be made between the datasets. Differences in findings between the 2009 survey and previous surveys in 2003 and 1995 are not likely to be due to differences in the sample base. Instead, they indicate real trends in career paths.

**Reasons for undertaking a PhD**

2.9 Figure 2.4 shows the reasons given by respondents for undertaking a PhD. The most frequently mentioned reasons for undertaking a PhD in 2009 mirror the most frequently mentioned reasons in 2003 and 1995.
2.10 Respondents were also asked to specify the main reason they had embarked on a PhD. The results show that the overwhelming motivation for undertaking a PhD is a love of the subject and a desire to continue working in this area for personal fulfilment.

2.11 Approximately one in five respondents said their main motivation in undertaking a PhD was to use it as a gateway into an academic career, but this is a relatively small proportion of all respondents.
2.12 The main reason for undertaking a PhD does not vary significantly between male and female respondents. One difference is that slightly more women than men say they embarked on a PhD specifically to pursue a career in academic research.

Table 2.1: Main reason for undertaking the PhD – gender analysis

<table>
<thead>
<tr>
<th>Reason</th>
<th>All 2009</th>
<th>Females 2009</th>
<th>Males 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Love of subject / research</td>
<td>68%</td>
<td>61%</td>
<td>70%</td>
</tr>
<tr>
<td>Pursue academic career</td>
<td>20%</td>
<td>25%</td>
<td>18%</td>
</tr>
<tr>
<td>Enhance general career prospects</td>
<td>3%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>No other plans</td>
<td>2%</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>Influence of university / family</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Enjoyed university life</td>
<td>2%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>Influence of friends / peers</td>
<td>1%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
<td>2%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Base: All respondents
3. Overview of career paths

Current status of respondents

3.1 Figure 3.1 shows the current status of respondents. It is clear that the vast majority of respondents are in employment. Overall, less than one per cent of respondents are unemployed.

Figure 3.1 Current status of respondents

Sectoral characteristics of employment

3.2 Figure 3.2 shows the sectoral characteristics of employment in comparison with the 2003 and 1995 surveys.
3.3 1 in 2 respondents from the 2009 cohort work in universities. Approximately one in four respondents work in other public sector organisations (such as UK and international research establishments, central government, hospitals, local government, and schools / colleges). A further 1 in 4 are employed in private sector businesses respectively (the self-employed are included as part of the private sector). The sectoral distribution of employment in 2009 is similar to the position in 1995. It is different to what was found in 2003. In 2003, the proportion of respondents working in the private sector was considerably higher than what has been found in 2009.

3.4 All survey data is subject to margins of error. Thus, the actual proportion of 2009 and 2003 respondents working in the private sector could be slightly higher and lower respectively than shown in Figure 3.2. Despite this, it is clear that less respondents are employed in the private sector in 2009 than was the case in 2003, and it is interesting to consider the reasons for this.

3.5 One reason for this could be the effects of the recession particularly in the financial and business services sectors in which many PPARC / STFC PhD students are employed. However, this is not supported by the data from the job history section of the survey. This shows the proportion of respondents employed in the private sector as more or less stable over the last 2-3 years.

3.6 Another reason could be that more employment opportunities have been available for PhD students in universities and other types of research establishments in recent years, due to increased funding for education and scientific research. Since most people take up a PhD because of an interest in scientific research, it is understandable that more would choose a career in academic research if greater opportunities became available.
3.7 There is evidence to support this from the Institute of Physics Survey of Academic Appointments in Physics 2004-2008 (published in January 2010). The survey found a net gain of 231 staff members from 2004-2008, reflecting some 12% of the current community. It also found that the physics areas gaining most staff members over the five-year survey period were astronomy, astrophysics, cosmology, and space physics (net gain of 60 individuals) and high energy and particle physics (net gain of 51 individuals).

3.8 The sectoral distribution of employment is similar for PhD subject and type as shown in Table 3.1. The only exception is that respondents who undertake a theoretical PhD (or mix of theory / experimental) are more likely to work in the private sector than average. Those that undertake an experimental PhD are less likely to work in the private sector (and more likely to be employed in a university) than average. This may reflect specific opportunities in the financial and business services sector for those who have developed high-level modelling / quantitative skills through theoretical research.

Table 3.1: Sectoral analysis of employment by subject and type of PhD

<table>
<thead>
<tr>
<th>Subject</th>
<th>University</th>
<th>Public sector</th>
<th>Private sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>All respondents</td>
<td>47%</td>
<td>23%</td>
<td>27%</td>
</tr>
<tr>
<td>Particle physics PhD</td>
<td>44%</td>
<td>23%</td>
<td>30%</td>
</tr>
<tr>
<td>Astronomy / planetary science PhD</td>
<td>48%</td>
<td>22%</td>
<td>26%</td>
</tr>
<tr>
<td>Theoretical PhD</td>
<td>36%</td>
<td>23%</td>
<td>35%</td>
</tr>
<tr>
<td>Experimental PhD</td>
<td>52%</td>
<td>24%</td>
<td>21%</td>
</tr>
<tr>
<td>Mix of theory / experimental</td>
<td>48%</td>
<td>14%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Base: All respondents

3.9 There is a difference in employment patterns between male and female respondents from the 2009 cohort. A greater proportion of male respondents are employed in the private sector compared to female respondents. More female respondents are employed in the public sector (excluding universities) than male respondents. The proportion of male and female respondents employed in universities is similar. However, the sample base for female respondents is small so margins of error will be larger.

Table 3.2: Sectoral analysis of employment by gender

<table>
<thead>
<tr>
<th>Sector</th>
<th>All</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>A private sector business / company</td>
<td>27%</td>
<td>16%</td>
<td>30%</td>
</tr>
<tr>
<td>A public sector / government organisation</td>
<td>23%</td>
<td>30%</td>
<td>21%</td>
</tr>
<tr>
<td>A university / higher education institution (HEI)</td>
<td>47%</td>
<td>45%</td>
<td>47%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
<td>7%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Base: All respondents

3.10 Figure 3.3 provides a detailed breakdown of employment outcomes for the 2009 cohort. Further information on the characteristics of employment in different sectors is provided in Section 4.
Respondents were asked to provide information on their salary to assess levels of remuneration across different types of job. Where respondents worked outside the UK, they were asked to estimate the sterling equivalent of their salary.

It is useful to have some benchmarks against which to compare the salary information collected from the survey. The average full-time salary for all workers in the UK in 2009 was £25,816. The average salary for non-manual workers in the UK in 2009 was £29,244. The average salary for workers employed in professional occupations was £36,2601.

Figure 3.4 provides an analysis of salary levels by employment sector. Information is presented on the proportion of former students with salaries of at least £25,000 so that comparisons can be drawn with the average salary in the UK. Information is also presented on the proportion of students with salaries of at least £35,000 so approximate comparisons can be made with the average salary of professional workers in the UK.

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1 Annual Survey of Hours and Earnings 2009, Office for National Statistics
Figure 3.4 Analysis of salary levels by employment sector

3.14 The main points of interest are as follows:

- More than 90% of respondents earn more than the average worker in the UK.
- Approximately 62% of respondents earn a similar or greater salary than the average professional worker in the UK despite being relatively young. The implication is that many former PhD students are high-achievers in the careers they have pursued.
- In the private sector, 74% earn a similar or greater salary than the average professional worker in the UK. This reflects the careers that former students have pursued in the private sector (particularly in the financial and business services sector where salary levels tend to be higher than average).

3.15 Figure 3.5 shows salary levels for male and female respondents. There is some variation between salary levels for men and women at the bottom and top end of the salary scales. Women tend to earn less than men and this is not because they are more likely to work part-time. A similar proportion of male and female respondents work part-time. The likely reason for the differential in pay between male and female respondents is the greater propensity for men to work in the private sector and women in the public sector (see Table 3.2).
Respondents who are not in employment

3.16 Only two respondents are unemployed. Neither has been unemployed for more than a year. One came to the end of a PDR contract and is looking for another similar position. The other has decided to make a career change and is looking for a research / teaching position after working in the private sector. Further information is provided in Table 3.3.

Table 3.3: Characteristics of unemployed respondents

<table>
<thead>
<tr>
<th>Length of unemployment</th>
<th>Last job</th>
<th>Length of last employment</th>
<th>Type of job wanted</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 months</td>
<td>University Research Assistant</td>
<td>3 years 6 months</td>
<td>Postdoctoral Research Contract</td>
</tr>
<tr>
<td>2 months</td>
<td>Trainee Accountant</td>
<td>1 year 1 month</td>
<td>Research Assistant at a University / FE College or Lectureship at a FE College</td>
</tr>
</tbody>
</table>

Base: All unemployed respondents
3.17 Two respondents are currently engaged in further education / training. Further information is provided in Table 3.4.

Table 3.4: Respondents engaged in education / training

<table>
<thead>
<tr>
<th>Course</th>
<th>Institution</th>
<th>Further Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSc Computing</td>
<td>University of Cardiff</td>
<td>Career development following period working as a post-doctoral researcher</td>
</tr>
<tr>
<td>PGCE Secondary School Science</td>
<td>University of Exeter</td>
<td>Career change after working as a research scientist in the private sector</td>
</tr>
</tbody>
</table>

Base: All respondents undertaking further education / training

3.18 Four respondents (2% of the sample) are looking after home / family and therefore not actively looking for work.

Extent to which respondents are still engaged in scientific research

3.19 71% of respondents are still engaged in scientific research either directly or indirectly through the management of research as shown in Figure 3.6. Only 23% of those employed in the private sector are still engaged in scientific research compared to 98% of those employed in universities and 74% of those employed in the public sector.

3.20 There is no substantial difference in the proportion of male (72%) and female (68%) respondents still engaged in scientific research.

Figure 3.6 Whether respondents are still engaged in scientific research
3.21 The proportion of respondents still engaged in scientific research is similar to what it was in 1995 (79%) but considerably higher than what it was in 2003 (53%). This reflects the higher level of private sector employment in 2003 compared to 1995 and 2009.

3.22 Over a half of respondents from the 2009 cohort are still engaged in scientific research that falls within the remit of STFC. However, a further 17% (35 respondents) continue to undertake scientific research but in subject areas outside the remit of STFC. Table 3.5 provides further information on the type of research in which they are engaged (based on the 32 respondents who provided further information on this). In the private sector, there is a spread of research areas but a clustering relating to life sciences / pharmaceuticals. This medical / life sciences theme can also be seen in the type of research that respondents are engaged in at universities and other public sector organisations; as well as a small clustering in climate science in the public sector.

### Table 3.5 Research outside the remit of STFC in which respondents are engaged

<table>
<thead>
<tr>
<th></th>
<th>Private sector (11 respondents)</th>
<th>Public sector (11 respondents)</th>
<th>Universities (10 respondents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceuticals, biotech, life sciences, toxicology (4)</td>
<td>Space industry, satellite technology</td>
<td>Radiotherapy physics &amp; clinical oncology</td>
<td>Mathematical epidemiology (3)</td>
</tr>
<tr>
<td>Signal processing</td>
<td>Laser engineering &amp; development</td>
<td>Image processing &amp; analysis</td>
<td>Bioinformatics / medical information</td>
</tr>
<tr>
<td>Autonomic computing</td>
<td>Photonics</td>
<td>Nuclear / explosives phenomena</td>
<td>GPU programming</td>
</tr>
<tr>
<td>Nuclear instrumentation</td>
<td>Actuarial science</td>
<td>Electrical metrology</td>
<td>Computer science</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Engineering / chemistry</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hydrogeology, petrophysics, and geophysics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nuclear physics, condensed matter physics</td>
</tr>
</tbody>
</table>

**Base:** All respondents engaged in research outside the remit of STFC

**Geographical location of respondents**

3.23 Almost a third of respondents from the 2009 cohort work outside the UK as shown in Figure 3.7. The proportion of respondents working outside the UK in 2009 is larger than it was in 2003 and 1995.
3.24 The 29% of people who work outside the UK (58 respondents) work mainly in Europe (12% - 24 respondents) and the US (12% - 25 respondents). Those who work in Europe are based in the following countries:

<table>
<thead>
<tr>
<th>Country</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>6</td>
</tr>
<tr>
<td>Greece</td>
<td>2</td>
</tr>
<tr>
<td>Germany</td>
<td>6</td>
</tr>
<tr>
<td>Italy</td>
<td>2</td>
</tr>
<tr>
<td>Norway</td>
<td>1</td>
</tr>
<tr>
<td>Spain</td>
<td>2</td>
</tr>
<tr>
<td>Austria</td>
<td>1</td>
</tr>
<tr>
<td>Sweden</td>
<td>1</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>3</td>
</tr>
</tbody>
</table>

Base: All respondents working in Europe

3.25 The proportion of male (69%) and female (73%) respondents working outside the UK is similar.

3.26 There is a difference in the propensity for people to work outside the UK according to the sector in which they are employed. Only 14% of those employed in the private sector work outside the UK compared to 40% of those employed in the public sector and 32% of those employed in universities.

3.27 Respondents were asked where in the world they intended to work in the long-term. The response was:

- UK – 73%
- Europe – 8%
- US – 10%
- Rest of World – 3%
- Unsure 6%

3.28 The findings indicate that approximately 1 in 4 former PhD students are likely to work outside the UK in the future. Unsurprisingly, a high proportion of those who already work outside the UK fall into this category.

3.29 One of the reasons cited for working outside the UK in the future is a perception that there are better opportunities for academic research outside the UK. In addition, many respondents have family / personal reasons for intending to work outside the UK in the future. It is important to bear in mind that not everyone who participates in the PPARC / STFC PhD programme is a British National. Around one in ten respondents do not have British nationality (most are EU citizens), so it is not surprising that many respondents choose to work outside the UK after their PhD for family / personal reasons. Having said this, the proportion of UK nationals who intend to work in the UK in the future (76%) is only slightly higher than for all respondents as a whole.

3.30 Figure 3.8 shows where UK-based respondents work in the UK. It shows that almost a half of those who work in the UK have their place of work in London and the South East.

**Figure 3.8 Where respondents work in the UK**

[Diagram showing distribution of respondents by region within the UK] Base: All respondents who are employed or self-employed in the UK
3.31 There is an even higher propensity for UK-based respondents who work in the private sector to have their place of work in London and the South East (60%). This compares to 42% in the public sector and 38% in universities. Figure 3.9 shows a sectoral breakdown of employment for all respondents (Figure 3.9a) and for UK-based respondents only (Figure 3.9b).

**Figure 3.9: Sectoral analysis of employment for all respondents and UK-based respondents only**

**Figure 3.9a: Sectoral analysis of employment for all respondents**

- Mortgage 47%
- Other 3%
- Public sector 23%
- Private sector 27%

Base: All respondents

**Figure 3.9b: Sectoral analysis of employment for UK-based respondents**

- Mortgage 44%
- Other 6%
- Public sector 17%
- Private sector 33%

Base: All respondents who live in the UK
3.32 The sectoral distribution of employment for UK-based respondents is similar to all respondents. Minor differences are that a higher proportion of UK-based respondents work in the private sector compared to all respondents and vice versa for the public sector. This reflects the high proportion of respondents working outside the UK who are employed in international research establishments.
4. Sectoral analysis of career paths

The private sector

4.1 12% of those who work in the private sector (which equates to 4% of respondents as a whole) are self-employed. Table 4.1 provides more information on the seven respondents that fall into this category.

Table 4.1 Information on respondents who are self-employed

<table>
<thead>
<tr>
<th>Business activity</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software consultant</td>
<td>1</td>
</tr>
<tr>
<td>Software provider</td>
<td>7</td>
</tr>
<tr>
<td>Maths tuition</td>
<td>1</td>
</tr>
<tr>
<td>Science writer / editor</td>
<td>1</td>
</tr>
<tr>
<td>Start-up on-line entrepreneur</td>
<td>1</td>
</tr>
<tr>
<td>TV / theatre production</td>
<td>1</td>
</tr>
<tr>
<td>IT provider and on-line retail business</td>
<td>3</td>
</tr>
</tbody>
</table>

Base: All respondents who are self-employed

4.2 It is clear that with two exceptions, respondents who fall into this category are mainly sole traders working for themselves. However, one respondent has been involved in setting up a company that now employs seven people and hopes to expand further in the future:

"I set up the business with three other students doing the same PhD as me. As we were finishing our PhDs, we were offered work writing a content management system for the university we were doing our PhDs at, so offering us a reasonably stable short-term income. I thought that running my own business was a more attractive proposition than joining a company at the time, and we have been fortunate that we got enough repeat work in the early days to keep the company afloat. We have now widened our customer base to around 15-20 UK universities and are looking to expand abroad."

4.3 The vast majority of those that work in the private sector are employees of established companies. For the most part, these are large companies as shown in Table 4.2.

Table 4.2: Size of companies employing former PhD students

<table>
<thead>
<tr>
<th>Size of company</th>
<th>% of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro (1-9 employees)</td>
<td>8%</td>
</tr>
<tr>
<td>Small (10-49 employees)</td>
<td>14%</td>
</tr>
<tr>
<td>Medium (50-249 employees)</td>
<td>18%</td>
</tr>
<tr>
<td>Large (250+ employees)</td>
<td>60%</td>
</tr>
</tbody>
</table>

Base: All respondents employed in the private sector (excluding the self-employed)
4.4 Figure 4.1 provides details on the sectors in which respondents are employed.

**Figure 4.1 Employment in the private sector: sectoral analysis**

- Business services (employs 42% of those working in the private sector)
- Financial services (employs 32% of those working in the private sector)
- Manufacturing (to a lesser extent employing 12% of those in private sector)
- Communications (to a lesser extent employing 8% of those in the private sector).

4.5 It is clear from Figure 4.1 that there is a demand for PPARC / STFC PhD students in the following sectors:

- Business services (employs 42% of those working in the private sector)
- Financial services (employs 32% of those working in the private sector)
- Manufacturing (to a lesser extent employing 12% of those in private sector)
- Communications (to a lesser extent employing 8% of those in the private sector).

4.6 These are high-value, knowledge intensive sectors that are critical to the future competitiveness of the UK economy. Employers in the business services sector are mainly specialised information technology / software companies. Further details on private sector employers of PPARC / STFC PhD students are provided in Appendix III.

4.7 Figure 4.2 compares the nature of private sector employment in the private sector for this study with the two previous studies in 2003 and 1995. It shows a consistent picture of employment being concentrated in the business services and financial services sectors. Employment in financial services has risen over the course of each survey whereas employment in business services has fluctuated up and down. However, these are relatively small samples and will be subject to margins of error.
Figure 4.2 Characteristics of private sector employment across survey cohorts

4.8 Figure 4.3 shows the occupations of those employed in the private sector. Nearly a half of those working in the private sector are employed as software programmers / analysts. The next most common occupations are business / technical analyst, financial professional, IT / management consultant, and science professional. A common feature of these occupations is that they require high level mathematical, computer modelling, and information technology skills which are a key component of many PPARC / STFC PhDs.
4.9 Respondents working in the private sector were asked how happy they were with their current job. Overall, respondents are reasonably content with the direction their career has followed although levels of job satisfaction are not quite as high as among those employed in universities and other public organisations.

Table 4.3 Satisfaction with current job – private sector

<table>
<thead>
<tr>
<th></th>
<th>All sectors</th>
<th>Private sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Happy</td>
<td>46%</td>
<td>32%</td>
</tr>
<tr>
<td>Quite Happy</td>
<td>51%</td>
<td>60%</td>
</tr>
<tr>
<td>Not Happy</td>
<td>3%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Base: All respondents; private sector respondents excludes the self-employed

4.10 Respondents were asked how they saw their career developing in the future and the findings from the survey are shown in Table 4.4.

4.11 The majority of those working in the private sector intend to continue in their current line of work in the future. No respondents are working in the private sector for negative reasons i.e. a lack of employment opportunities elsewhere. Those who may follow a different career path in the future are doing this for greater flexibility and more personal fulfilment.
Table 4.4 Future career plans

<table>
<thead>
<tr>
<th>Intention</th>
<th>All sectors</th>
<th>Private sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intend to stay in this area of work</td>
<td>86%</td>
<td>72%</td>
</tr>
<tr>
<td>Only doing this type of work because of a lack of other employment opportunities and will pursue different career path in the future</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>This is a good job but I hope to pursue a different career path in the future</td>
<td>10%</td>
<td>22%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Base: All respondents; private sector respondents excludes the self-employed

**The university sector**

4.12 Figure 4.4 provides a breakdown of employment in the university sector.

**Figure 4.4 Breakdown of employment in the university sector**

4.13 The main points of interest are as follows:

- Many of those employed in the university sector have secured permanent faculty positions (lecturer, senior lecturer, other permanent teaching / research position, and other non-teaching / research position).

- The largest group employed in universities are post-doctoral researchers (44%). It is likely that they are employed on a mix of fixed-term and open-ended contracts.
fixed-term working legislation since the time of the last survey in 2003 means that more researchers are now employed on open-ended contracts. HESA data shows that 27% of researchers are now on open-ended contracts compared with 3-4% at the time of the last survey.

- A further 13% of respondents (12 people) are fixed-term research fellowship holders. 11 of the respondents provided further information on their award as follows:
  - STFC Advanced Fellowship (2)
  - STFC Postdoctoral Fellowship (1)
  - STFC Research Fellowship (1)
  - University of Durham Associate Fellowship (1)
  - Royal Society University Research Fellowship (1)
  - European Research Council Fellowship (1)
  - Royal Society Dorothy Hodgkin Fellowship (1)
  - Oak Ridge Associated Universities' NASA Post-doctoral Fellowship (1)
  - Stanford University Kavli Fellowship (1)
  - Munich Technical University “Excellence Cluster Universe” Fellowship (1)

4.14 Respondents were asked how happy they were with their current job. As shown in Table 4.5, those employed in universities generally enjoy high levels of job satisfaction.

**Table 4.5 Satisfaction with current job – universities**

<table>
<thead>
<tr>
<th></th>
<th>All sectors</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Happy</td>
<td>46%</td>
<td>49%</td>
</tr>
<tr>
<td>Quite Happy</td>
<td>51%</td>
<td>48%</td>
</tr>
<tr>
<td>Not Happy</td>
<td>3%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Base: All respondents; All respondents in the university sector

4.15 Overwhelmingly, those employed in the university sector intend to continue to pursue a career in academic research in the future.
Table 4.6 Future career plans

<table>
<thead>
<tr>
<th>Future career plans</th>
<th>All sectors</th>
<th>University sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intend to stay in this area of work</td>
<td>86%</td>
<td>93%</td>
</tr>
<tr>
<td>Only doing this type of work because of a lack of other employment opportunities and will pursue different career path in the future</td>
<td>-</td>
<td>1%</td>
</tr>
<tr>
<td>This is a good job but I hope to pursue a different career path in the future</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Base: All respondents in the university sector

The public sector (outside universities)

4.16 Figure 4.5 provides a breakdown of employment in the public sector outside universities.

Figure 4.5 Breakdown of employment in the public Sector

4.17 The largest proportion of respondents in this sector work in international research establishments (41%). This is a considerably higher proportion than in 2003 when 27% of respondents were employed in such organisations. Again, the implication is that there may have been growth in employment opportunities in this sector since 2003.

4.18 Overall, 19 respondents are employed in the following international research establishments:

- Association of Universities for Research in Astronomy and Gemini Observatory (3)
Las Cumbres Observatory Global Telescope Network (3)
- Fermilab (2)
- Max Planck Institute for Astrophysics in Germany (2)
- Anglo-Australian Observatory (2)
- Arecibo Observatory (1)
- Los Alamos National Laboratory (1)
- SLAC National Accelerator Laboratory (1)
- DESY in Germany (1)
- European Spallation Source (1)
- New Zealand Crown Research Institute (1)
- Austrian Academy of Sciences (1)

4.19 Only five respondents (11% of those employed in the public sector) work in UK research establishments which is lower than in 2003. The establishments are STFC (4) and AWE (1).

4.20 The proportion of respondents who work in central government is similar to 2003. Employers in this category are: the Met Office (3), the BBC, the Department for Communities and Local Government, the Defence Science and Technology Laboratory, the Financial Services Authority, the Home Office, the NHS Institute for Innovation and Improvement, the Office for Rail Regulation, and the Natural History Museum.

4.21 The majority of respondents employed in this sector are content with the career path they have pursued. There is not a significant difference in job satisfaction levels between those employed in research establishments in this sector and other types of organisations.

Table 4.7 Satisfaction with current job – public sector

<table>
<thead>
<tr>
<th></th>
<th>All sectors</th>
<th>Public sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Happy</td>
<td>46%</td>
<td>55%</td>
</tr>
<tr>
<td>Quite Happy</td>
<td>51%</td>
<td>45%</td>
</tr>
<tr>
<td>Not Happy</td>
<td>3%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Base: All respondents; all respondents working in the public sector

4.22 Most of those employed in the public sector intend to continue with their current area of work in the future.
Table 4.8 Future Career Plans

<table>
<thead>
<tr>
<th>Response Description</th>
<th>All sectors</th>
<th>Public sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intend to stay in this area of work</td>
<td>86%</td>
<td>87%</td>
</tr>
<tr>
<td>Only doing this type of work because of a lack of other employment opportunities and will pursue different career path in the future</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>This is a good job but I hope to pursue a different career path in the future</td>
<td>10%</td>
<td>9%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Base: All respondents; all respondents working in the public sector
5. **Respondent perspectives on the value of a PhD**

5.1 This section considers the views of former PhD students on the value of their PhD and the skills they gained during the course of their training.

**Value of PhD training**

5.2 Respondents were asked to what extent their PhD had been useful in giving them skills to help develop their career subsequently. The findings are presented in Figure 5.1.

**Figure 5.1** To what extent has your PhD training been useful in developing your career subsequently

<table>
<thead>
<tr>
<th></th>
<th>Very Useful</th>
<th>Quite Useful</th>
<th>Not Very Useful</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All</strong></td>
<td>71%</td>
<td>24%</td>
<td>5%</td>
</tr>
<tr>
<td><strong>University</strong></td>
<td>91%</td>
<td>7%</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Private sector</strong></td>
<td>42%</td>
<td>47%</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Public sector</strong></td>
<td>66%</td>
<td>30%</td>
<td>4%</td>
</tr>
</tbody>
</table>

5.3 The majority of respondents believe their PhD training has been useful in developing their career subsequently. As expected, PhD training is perceived as most useful by those employed in universities.

5.4 However, almost half of those employed in the private sector consider their PhD training to have been very useful for the career path they have pursued subsequently, and most others consider it to have been quite useful. These findings are similar to those found in 2003.

5.5 About half of the small group that do not consider their PhD to have been useful in developing their career subsequently are respondents who did not achieve a PhD.
Importance of having a PhD

5.6 Respondents were asked whether their PhD was:

- An **essential** requirement for their job / career
- Of **some importance** in that a PhD is not a general requirement for their current job / career, but it helped them to either get into that area of work, or to progress more quickly than they would otherwise have done
- Of **little or no importance** in that their PhD has been of no material significance to their job / career to date

5.7 The findings are shown in Figure 5.2.

**Figure 5.2 Importance of PhD training to job / career**

![Bar Chart]

5.8 There are clear differences across sectors in the importance of having a PhD. Almost all those employed in the university sector regard their PhD as being essential to the career path they have pursued. In contrast, only 5% of those employed in the private sector perceive a PhD training to be essential to the career path they have followed. However, a high proportion (75%) say that it has been of some importance in getting them into their current career or helping them to progress more quickly than they would otherwise have done.

5.9 Table 5.1 compares the responses to this question with the responses received in the 2003 and 1995 studies. It is clear that more students in the 2009 study (and the 1995 study) regard a PhD as being essential to their job when compared to the 2003 study. This reflects the
higher proportion of respondents employed in universities (and conversely the lower proportion employed in the private sector) in 2009 and 1995, compared to 2003.

Table 5.1 Importance of PhD training to job / career

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2003</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential</td>
<td>58%</td>
<td>45%</td>
<td>58%</td>
</tr>
<tr>
<td>Of some importance</td>
<td>34%</td>
<td>47%</td>
<td>25%</td>
</tr>
<tr>
<td>Of little or no importance</td>
<td>8%</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>0%</td>
<td>1%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Base: All respondents

Whether former students would undertake a PhD again

5.10 The overwhelming majority of respondents would choose to undertake a PhD again. Even 84% of those working in the private sector, where a PhD is not usually an essential requirement, would undertake a PhD again. This indicates a high level of personal fulfilment from PPARC / STFC PhD training.

Figure 5.3 Whether former students would undertake a PhD again
Skills gained from PhD training

5.11 Respondents were asked to provide information on what skills / competencies they had gained from their PhD training. The ‘top ten’ skills mentioned by respondents are shown in Figure 5.4.

Figure 5.4 Ten most mentioned skills / competencies gained from PhD

![Bar Chart]

5.12 It is encouraging that such a high proportion of respondents say they gained skills that are transferable to many occupations; for example, quantitative analysis / computing, problem solving, presentation skills, taking individual initiative, working independently, and creative thinking. These are the type of high level skills that are needed to drive a high-value, innovative economy in the future.

Most important skills / competencies gained from PhD for current job

5.13 Respondents were asked to provide information on the most important skills gained during their PhD in relation to their current job (respondents could mention up to five different skills / competencies). The findings are shown in Figure 5.5.
5.14 The ‘top five’ skills / competencies mentioned across different employment sectors are shown in Table 5.2. The public sector has been divided into two categories for this purpose: Public sector: Research organisation and Public sector: Non-research organisation. Table 5.2 shows that respondents working in universities believe the subject knowledge / technical skills they gained from their PhD are most important in their current job. In the private and public sector, the technical skills gained from a PhD in terms of computer programming and knowledge of IT systems are also important. However, it is noticeable that both groups highlight problem solving as one of the key skills they have taken from their PhD into their jobs.

Table 5.2 Five most mentioned skills / competencies gained from PhD in relation to current job: sectoral analysis

<table>
<thead>
<tr>
<th>University</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of specific subject area</td>
<td>59%</td>
</tr>
<tr>
<td>Quantitative data analysis</td>
<td>48%</td>
</tr>
<tr>
<td>Writing software / programming skills</td>
<td>47%</td>
</tr>
<tr>
<td>Problem solving</td>
<td>36%</td>
</tr>
<tr>
<td>Original / innovative / creative thinking</td>
<td>35%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Public sector: Research organisation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of specific subject area</td>
<td>54%</td>
</tr>
<tr>
<td>Problem solving</td>
<td>50%</td>
</tr>
</tbody>
</table>
Team working / communication skills | 50%
Writing software / programming skills | 46%
Original / innovative / creative thinking | 42%

**Public sector: Non-research organisation**

<table>
<thead>
<tr>
<th>Skill</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem solving</td>
<td>59%</td>
</tr>
<tr>
<td>Written / report writing skills</td>
<td>50%</td>
</tr>
<tr>
<td>Quantitative data analysis</td>
<td>46%</td>
</tr>
<tr>
<td>Team working / communication skills</td>
<td>41%</td>
</tr>
<tr>
<td>Writing software / programming skills; Teaching / mentoring</td>
<td>32%</td>
</tr>
</tbody>
</table>

**Private sector**

<table>
<thead>
<tr>
<th>Skill</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem solving</td>
<td>61%</td>
</tr>
<tr>
<td>Writing software / programming skills</td>
<td>58%</td>
</tr>
<tr>
<td>Team working / communication skills</td>
<td>46%</td>
</tr>
<tr>
<td>Information technology systems</td>
<td>40%</td>
</tr>
<tr>
<td>Project management</td>
<td>37%</td>
</tr>
</tbody>
</table>

Base: All respondents

**Skills / competencies which should have been given more emphasis during PhD**

5.15 Respondents were asked whether there were any skills / competencies that should have been given greater emphasis during their PhD to prepare them for work. The skills mentioned most frequently by respondents in this respect are shown in Figure 5.6.
Figure 5.6 Ten most mentioned skills / competencies which should have been given more emphasis during PhD

<table>
<thead>
<tr>
<th>Skill</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career management / planning your career</td>
<td>38%</td>
</tr>
<tr>
<td>Knowledge of process for funding research</td>
<td>30%</td>
</tr>
<tr>
<td>Networking</td>
<td>29%</td>
</tr>
<tr>
<td>Teamwork / communication skills</td>
<td>27%</td>
</tr>
<tr>
<td>Writing software / programming skills</td>
<td>17%</td>
</tr>
<tr>
<td>Knowledge of process for commercialising</td>
<td>16%</td>
</tr>
<tr>
<td>Self-discipline / motivation</td>
<td>12%</td>
</tr>
<tr>
<td>Taking initiative / working independently</td>
<td>11%</td>
</tr>
<tr>
<td>Written / report writing skills</td>
<td>11%</td>
</tr>
<tr>
<td>Written / report writing skills</td>
<td>10%</td>
</tr>
</tbody>
</table>

Base: All respondents

5.16 The four areas that stand out are:

- Career planning
- Knowledge of the process for funding research
- Project management
- Building / maintaining networks of contacts.

**Satisfaction with quality of PhD training**

5.17 Respondents were asked how satisfied they were with the quality of the PhD training received. The survey findings are shown in Figure 5.7.
5.18 The majority of respondents are satisfied with the quality of PhD training they received. Some of the complimentary comments made about the PPARC / STFC PhD programme are listed below:

“I worked with very talented and hard working people who were passionate about their work during my PhD which set a standard for what a career had to hold for me. During my PhD I significantly expanded my skills and confidence outside pure academic study through teaching, collaborations, and presentations.”

“Apart from the specifics of learning new physics in my PhD, it trained me to approach all problems, be they mathematical, scientific, or managerial, in a logical and rigorous manner.”

“I learnt a lot, generally through self motivation, but also from opportunities to work with skilled people and the training courses I was encouraged to attend.”

“I had very good supervision, amazing foreign working experience. Best thing I have done.”

5.19 The quality of student / supervisor relationship is the overwhelming factor influencing respondent views on the quality of their PhD training. This is illustrated by the comments below:

“I got what I asked for - I picked a supervisor who was hard to work with. Too hard, as it turned out.”

Figure 5.7 Satisfaction with quality of PhD training

<table>
<thead>
<tr>
<th>Satisfied Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfied</td>
<td>52%</td>
</tr>
<tr>
<td>Quite satisfied</td>
<td>40%</td>
</tr>
<tr>
<td>Not satisfied</td>
<td>8%</td>
</tr>
</tbody>
</table>

Base: All respondents
“I feel the level of supervision I received was very poor.”

“I was my supervisor’s first student, and probably suffered because of it. In general, it would have been good to have an additional, more experienced supervisor.”

“More training for PhD supervisors would probably be the biggest help for new students (my own supervisor was very willing to help, but I had the feeling that he was working it out for himself as he went along).”

“A general observation is that the level and style of supervision varied massively between PhD supervisors. Students who were unlucky with their supervisor were disadvantaged compared to others. Fortunately I did not have this problem.”

5.20 Generally, there is a high level of satisfaction among respondents about the quality of PhD training they received. Thus, the issues highlighted below about shortcomings in PhD training and improvements that could be made relate to a relatively small proportion of respondents. Some of the points that are raised relate to insufficient time / funding being available to complete a high quality PhD and the importance of funding being available for publications. Some respondents also highlighted the need for more emphasis on career planning, knowledge of the process for funding research and project management, which are skills / competencies highlighted earlier.

“The gap between undergraduate degree and PhD is very large. It is hard to make up this difference and produce original research in time allocated.”

“Three years is too short for a PhD. A four year PhD would give enough time to write a solid PhD and compete with Europeans and Americans for PDRAs in the UK.”

“Three years is very short for a PhD – particularly noticeable when working with other international students. I took almost four years to submit my thesis. I know that STFC have improved this in recent years (along with the amount of funding for each student). I think this was a very important and useful change.”

“Funding for travel to more than one scientific conference was crucial to the development of my career and finding a postdoctoral position. Funding for publications was also crucial in order to demonstrate to future employers my ability to have my work published in major international peer reviewed journals.”

“The quality of my PhD was enhanced because funds were available for travel to conferences, allowing me to present my work and meet potential future employers. My supervisor was able to fund page charges which allowed me to publish in more prestigious journals and demonstrate to future employers the quality of my PhD work.”

“Clearly the quality of perceived PhD training depends very much on the institute, candidate-supervisor relationship etc. Overall I feel that sufficient opportunities were offered to expand my knowledge and skills in useful areas, either at my institute or through other RC supported schemes. Having switched between industry and
academia several times, before and after my PhD, I feel that one thing missing in general academic research is the somewhat rigorous project management skills that one needs in industry. Whilst these are typically taught when needed in industry, they are also useful skills in academia, and in my opinion skills typically lacking - particularly in academics with no industrial experience. Therefore I think this would be a useful additional training programme."

“There is a complete lack of understanding of what project management is in academia. This is a very important and transferrable skill that would benefit academia and is even more valuable in the commercial sector.”

“While there were organised PPARC courses on finding jobs outside academia, guidance for those wishing to stay within academia was rather scarce. I think American grad students have a much clearer idea of how the research field works by the time they finish, and I found that my first postdoc (in USA) was valuable in filling in those gaps for me.”

Further study / training since completion of PhD

5.21 20% of respondents have undertaken or are undertaking further study / training that has led / will lead to a qualification since completing their PhD. Those employed in the private and public sector are most likely to have engaged in further study / training leading to a qualification (26% and 28% respectively). Those employed in the university sector are least likely to have engaged in further study / training leading to a qualification (11%).

5.22 Figure 5.8 shows the type of further study / training that respondents have undertaken since their PhD.

Figure 5.8 Type of further study / training undertaken by respondents
5.23 One of the most common qualifications undertaken after a PhD is a Post-Graduate Certificate in Higher Education. All but one respondent who had undertaken this qualification had been funded by their employer.

5.24 Another common qualification after a PhD is a Masters Degree, often in a different subject area. Further information on the types of Masters Courses undertaken by respondents is provided below.

Table 5.3: Information on the type of courses undertaken by respondents

<table>
<thead>
<tr>
<th>Course</th>
<th>Institution</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA</td>
<td>Imperial College</td>
<td>Employer</td>
</tr>
<tr>
<td>MSc Software Engineering</td>
<td>University of Oxford</td>
<td>Employer</td>
</tr>
<tr>
<td>MSc Medical Physics</td>
<td>University of Sheffield</td>
<td>Employer</td>
</tr>
<tr>
<td>MSc Medical Physics</td>
<td>University of Surrey</td>
<td>Self-funded</td>
</tr>
<tr>
<td>MSc Science</td>
<td>Open University</td>
<td>Employer</td>
</tr>
<tr>
<td>MSc Science</td>
<td>Open University</td>
<td>Employer</td>
</tr>
<tr>
<td>MSc Computing</td>
<td>University of Cardiff</td>
<td>Self-funded</td>
</tr>
<tr>
<td>MA Philosophy</td>
<td>Open University</td>
<td>Employer / Self-funded</td>
</tr>
<tr>
<td>MSc Applied Equine Science</td>
<td>Royal Agricultural College</td>
<td>Self-funded</td>
</tr>
</tbody>
</table>

Base: All respondents who undertook a Masters degree after their PhD

5.25 Another common group of qualifications post PhD are Chartered Accountancy and Management-related qualifications. Further information on the types of management courses undertaken by respondents is provided below.

Table 5.4: Information on management courses undertaken by respondents

<table>
<thead>
<tr>
<th>Course</th>
<th>Institution</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>M865 in Project Management</td>
<td>Open University</td>
<td>Self-funded</td>
</tr>
<tr>
<td>Level 3 Certificate in Management</td>
<td>Chartered Management Institute</td>
<td>Employer</td>
</tr>
<tr>
<td>Diploma in Leadership and Management</td>
<td>Solihull College</td>
<td>Employer</td>
</tr>
<tr>
<td>Diploma in Management</td>
<td>Oxford Brookes University</td>
<td>Employer</td>
</tr>
<tr>
<td>PRINCE2 Practitioner</td>
<td>ACL Training</td>
<td>Employer</td>
</tr>
</tbody>
</table>

Base: All respondents undertaking management-related qualifications after their PhD

5.26 Other qualifications gained by respondents since their PhD are varied ranging from Graduate Diplomas in Audiology and Law to a BSc in Biology.
6. **Time series analysis**

6.1 All respondents were asked to complete a ‘diary’ providing details of the jobs they had undertaken since the end of their PhD award. Data is only presented for up to seven years after the end of a PhD award because after this point the sample base becomes smaller and less reliable.

6.2 Figure 6.1 shows the proportion of respondents employed in different sectors over time. The university sector is divided into three main job types:

- Permanent teaching / research position
- Fixed term teaching / research positions (for example postdoctoral researchers and research fellows)
- Other University posts (for example administration, computing).

![Figure 6.1 Time Series Analysis of Employment](image)

6.3 The key points from Figure 6.1 are as follows:

- The steep decline in the proportion of respondents employed in fixed term teaching / research positions in universities over time. The gradient falls sharply after three years which reflects the typical duration of a post-doctoral research position. The same trend was evident in the 2003 and 1995 studies. However, future surveys need to make allowance for the new fixed-term working legislation which means more researchers may be employed on open-ended contracts as their career develops.
The inverse relationship between employment in fixed term teaching / research positions and permanent teaching / research positions. It is noticeable that the proportion of respondents with permanent positions rises significantly after 3-4 years.

The proportion of respondents working in the private sector is relatively stable over time. The implication is that most respondents working in the private sector chose this career path immediately after their PhD rather than spending time in academic research and then moving into the private sector.
Appendix I – Methodology

Sample selection

I. The sample for the study was drawn from students whose PhD awards ended 6 to 9 years ago in 2000, 2001, 2002, and 2003. The reason for this was to ensure that the 2009 cohort was as similar as possible to the cohorts for the 1995 and 2003 studies so meaningful comparisons between the datasets could be made. Both these earlier studies focussed on a cohort of PhD students whose awards expired 6 to 9 years prior to the survey.

II. As for the 1995 and 2003 studies, it was decided to select students for inclusion in the survey from a sample of universities, rather than covering all universities that had PPARC PhD places in the relevant time period. The twenty universities selected for this study were largely similar to those selected for the 1995 and 2003 studies. This resulted in the identification of 658 former students who were potentially eligible for inclusion in the survey, representing 86% of all PPARC PhD awards that ended between 2000 and 2003.

Student tracking

III. As for the 1995 and 2003 studies a key requirement was that the study should provide representative data. It was important that the methods used to track former students did not introduce bias into the survey findings. For example, one way of tracking former students might be through databases and websites that cover scientific publications and research. However, this would almost certainly bias the sample towards those who had remained in academia.

IV. It was decided that the tracking work should focus, as for the 1995 and 2003 studies, on contacting former students through university alumni offices. All the alumni offices across the twenty universities included in the study agreed to participate in the work and DTZ is grateful for their assistance. All tracking work was undertaken in accordance with the provisions of the Data Protection Act which meant using the alumni offices as intermediaries to send questionnaires (paper and electronic) to former students. No contact details were released directly to DTZ.

V. In addition, STFC holds a range of contact information for former students at the time they started their PhD. Much of this could not be used as it would be out of date. However, as for the 1995 and 2003 studies, questionnaires were sent to the parental addresses of former students since it was reasonable to expect that many parents would still be living at the same address and would forward on the questionnaire.

VI. Finally, as for the 1995 and 2003 studies, university departments were asked to provide information on the current whereabouts of former students. Departments were not expected to provide full contact details – only ‘leads’ which could be followed up subsequently by DTZ. For example ‘X last worked at Smith Industries but I have no contact information there’. Provision was made in the study budget to follow up all leads of this kind so that contact information was not bias to those who had remained in academia.

VII. DTZ is confident that the methods used to track former students mean there is no particular reason why students who were not traced should be different to those who were found, and
that the sample is representative of all students completing PPARC PhD awards in the relevant period for this study.

**Postal / on-line web survey**

VIII. Former students were given the opportunity to complete a postal or electronic questionnaire. The survey commenced in October 2009 and closed in December 2009.

IX. In total, 209 questionnaire returns were received which represents a response rate of 32% of those eligible for inclusion in the study.
Appendix II - Career path questionnaire
The Science and Technology Facilities Council (STFC) has appointed DTZ and Swift Research to undertake a survey of former STFC / PPARC PhD students. We are contacting people who completed PhD awards between 2000 and 2003. The purpose of the survey is to develop a better understanding about what happens to postgraduate students 6-9 years after they leave university.

One of the key objectives of the STFC is to support the development of skilled scientists through postgraduate training and STFC will use the information from the survey to inform future policy and funding decisions. We would be grateful if you would help us by completing this short questionnaire and returning it in the pre-paid envelope provided. Alternatively, you can complete the web questionnaire at www.swift-research.co.uk/phd. It really will make a difference to hear from you.

The survey is being undertaken in accordance with the 1998 Data Protection Act. The information you provide will be treated in confidence and will be used only to produce aggregate survey data. You will not be identified from the survey results and contact details will not be divulged to anyone else without your permission.

As a token of appreciation for participating in this survey DTZ will make a charitable donation of £2 for every returned questionnaire (to be divided equally between Oxfam and Macmillan Cancer Support). STFC will also provide everyone with the opportunity of receiving an electronic summary of the survey findings.

Please note that you may receive more than one copy of the questionnaire since contact details have been collated from different sources. We apologise in advance if this happens. There is no need to return duplicate questionnaires.

Please return the questionnaire as soon as possible, within the next two weeks, by using the pre-paid envelope provided or complete the web questionnaire at: www.swift-research.co.uk/phd

If you have any queries please email pauline.innes@dtz.com
Or call 01189 672027.

If you would like to contact STFC please email katharine.hollinshead@stfc.ac.uk
Or call 01793 442017.
Thank You

SECTION A: YOUR PHD

1. In what year did your PhD award begin?

Please ✓ one box only

- 1997
- 1998
- 1999
- 2000
- Other (Please write in the year)

2. Would you describe your PhD as being mainly...?

Please ✓ one box only

- Theoretically based
- Experimentally based
  - Observation / experiment
  - Technology / instrumentation
- Equal mix of theory and experiment

3. In which of the following subject areas did you undertake your PhD...?

Please ✓ one box only

- Particle Physics
- Astronomy, Astrophysics and Cosmology
- Planetary Science and Solar Research including Space Physics
- Other (Please specify below)
4. Why did you decide to undertake a PhD?

<table>
<thead>
<tr>
<th>All Reasons</th>
<th>Main Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please ✓ all that apply</td>
<td>Please ✓ one box only</td>
</tr>
<tr>
<td>A love of the subject / research</td>
<td>1 1</td>
</tr>
<tr>
<td>Wanted to pursue a career in academia / research</td>
<td>2 2</td>
</tr>
<tr>
<td>To enhance general career prospects</td>
<td>3 3</td>
</tr>
<tr>
<td>Did not know what else to do</td>
<td>4 4</td>
</tr>
<tr>
<td>No suitable alternative employment</td>
<td>5 5</td>
</tr>
<tr>
<td>Friends / peers were taking PhDs</td>
<td>6 6</td>
</tr>
<tr>
<td>Encouraged by university staff or parents / family to do it</td>
<td>7 7</td>
</tr>
<tr>
<td>Enjoyed university life</td>
<td>8 8</td>
</tr>
<tr>
<td>Other (please write in below)</td>
<td>9 9</td>
</tr>
</tbody>
</table>

5. Have you been awarded a PhD?

- Yes 1 Go to Section B
- No 2 Continue

6. What is the current position with your PhD?

For example, are you still working towards submitting your research? Or have you decided not to submit your research? If so why?

SECTION B: YOUR CURRENT SITUATION

7. Which of the following best describes your current situation...?

- Employed full-time in paid work (30 hours a week or more) 1 Go to Section C (Page 4)
- Employed part-time in paid work (less than 30 hours a week) 2 Go to Section C (Page 4)
- Self-employed / freelance 3 Go to Section C (Page 4)
- Undertaking further study / training 4 Answer Q8-Q10 (Page 3)
- Unemployed / looking for work 5 Answer Q11-Q13 (Page 3)
- Taking time out and not actively looking for work, e.g. travelling 6 Answer Q14-Q15 (Page 4)
- Looking after home / family and not actively looking for work 7 Answer Q14-Q15 (Page 4)
- Other (please provide details in the space below) 8 Answer Q14-Q15 (Page 4)
8. What is the nature of the further study / training you are currently undertaking?

Please provide details on your course, institution, qualification, funding source, start / end dates and reasons for undertaking further study / training.

Course: __________________________ Institution: __________________________
Qualification: __________________________ Funding Source: __________________________
Start Date: __________________________ End Date: __________________________
Reason: __________________________

9. What was the last organisation you worked for?

Please provide name / description of your previous employer, your job title / role and start / end dates.

Organisation Name: __________________________
Organisation Description: __________________________
Your Job Role: __________________________
Start Date: __________________________ End Date: __________________________
No Previous Employment: □

10. What type of job do you hope to get in the future?

___________________________
___________________________
___________________________

PLEASE GO TO SECTION D (Page 9)

11. How long have you been unemployed / looking for work?

Years: □ □ Months: □ □

12. What was the last organisation you worked for?

Please provide name / description of your previous employer, your job title / role and start / end dates.

Organisation Name: __________________________
Organisation Description: __________________________
Your Job Role: __________________________
Start Date: __________________________ End Date: __________________________
No Previous Employment: □

13. What type of job are you looking for?

___________________________
___________________________
___________________________

PLEASE GO TO SECTION D (Page 9)
14. What was the last organisation you worked for?
Please provide name / description of your previous employer, your job title / role and start / end dates.

Organisation Name: _____________________________________________
Organisation Description: ______________________________________
Your Job Role: _________________________________________________
Start Date: ____________________________ End Date: ________________

No Previous Employment: ☐

15. What are your plans for the future? If relevant, what type of job do you hope to have in the future?

________________________________________________________________
________________________________________________________________
________________________________________________________________

PLEASE GO TO SECTION D (Page 9)

SECTION C: CURRENT EMPLOYMENT

16. When did you start your current job / employment?

Month: ☐ ☐ Year: ☐ ☐ ☐ ☐ ☐

17. How would you describe the organisation you work for? Please ✔ one box only

A university / higher education institution (HEI) ☐ 1 Go to Q18 (Page 5)
A private sector business / company ☐ 2 Go to Q19 (Page 5)
A public sector /government organisation
   - e.g. research establishment, government dept / agency, school ☐ 3 Go to Q23 (Page 6)
A voluntary sector organisation / charity ☐ 4 Go to Q23 (Page 6)
I am self-employed / freelance ☐ 5 Go to Q26 (Page 7)
Unsure / something else (please provide details of your employment in the space below) ☐ 6 Go to Q29 (Page 7)

_________________________________________________________________
Employed in University / Higher Education Institution

18. Which of the following best describes your current position? Please ✓ one box only

**Permanent Teaching / Research Position**
- a) Lecturer
- b) Senior Lecturer
- c) Professor
- d) Other permanent teaching / research position
  (please provide details of your position and how this is funded below)

**Fixed Term Teaching / Research Position**
- e) Postdoctoral research assistant (a post funded through a research grant)
- f) Research fellowship holder (a personal research award).  
  (Please specify the type of award you hold and the funder below)
- g) Lecturer
- h) Other fixed term teaching / research position (please specify below)

**Other University Position (e.g. administration, IT support)**
- i) Permanent position (please provide job title below)
- j) Fixed term position (please provide job title below)

---

PLEASE GO TO Q29 (Page 7)

Employed in Private Business

19. What is the name of your employer? What type of company is this? 
*For example, Financial Services, Software, Manufacturing. Please describe the products / services provided by your company.*

**Employer Name:** ________________________________

**Employer Description:** ________________________________

---

20. What is your job title? What does this involve? 
*Please describe your role and responsibilities in the company.*

**Job Title:** ________________________________

**Job Description:** ________________________________

---
21. How many people (approx) does the company employ in the UK?
   Please ✓ one box only
   1-9
   10-49
   50-249
   250+

22. Is your job a permanent or fixed term / temporary position?
   Please ✓ one box only
   Permanent
   Fixed Term / Temporary

NOW GO TO Q29 (Page 7)

Employed in Public Sector or Voluntary Organisation

23. What is the name of your employer? What type of organisation is this?
   For example, Research Establishment, Government Body, School, Charity. Please describe the activities of your organisation.

   Employer Name: ____________________________
   Employer Description: _______________________
   __________________________________________
   __________________________________________

24. What is your job title? What does this involve?
   Please describe your role and responsibilities in the organisation.

   Job Title: ____________________________
   Job Description: _______________________
   __________________________________________
   __________________________________________

25. Is your job a permanent or fixed term / temporary position?
   Please ✓ one box only
   Permanent
   Fixed Term / Temporary

NOW GO TO Q29 (Page 7)
Self Employed / Freelance

26. Which of the following best describes your current position...?  
*Please ✓ one box only*

- I run my own business [ ] 1 Continue
- I work on a freelance basis [ ] 2 Go to Q28
- Something else [ ] 3 Go to Q28

27. Please provide some information about your business?  
*For example what it does, why you set it up, its annual turnover, how many people it employs.*

- **Type of Work:**  
- **Annual Turnover:**  
- **No. of Employees:**

- **Set Up Reason:**

---

**NOW GO TO Q29**

28. Please tell us about the type of work you undertake? Who are your main clients?  

- **Type of Work:**

- **Main Clients:**

29. Does your current job still involve you in scientific research (either directly or indirectly through the management of research)?  

- Yes [ ] 1 Continue
- No [ ] 2 Go to Q31 (Page 8)

30. Does the research in which you are involved relate to...?  

- **Subject areas within the remit of STFC / PPARC**  
  *(e.g. particle physics, astronomy/astrophysics/cosmology and planetary science and solar research including space physics)* [ ] 1

- **Subject areas outside the remit of STFC / PPARC**  
  *(Please provide details below)* [ ] 2

---

7
31. How did you find out about your current job?  
Please ✓ all that apply

- Careers service at the institution(s) at which you studied / or its website 1
- Other careers service / or its website 2
- Employers website 3
- Newspaper / magazine advertisement / or its website 4
- Recruitment office agency or website 5
- Already / Previously worked for the organisation 6
- Professional work or educational contacts / networks 7
- Personal contacts including family and friends 8
- Speculative approach to employer 9
- Other (Please Specify) 10

32. Where is your current job located?  
Please ✓ one box only

UK 1  
Town / City (Please Specify): ____________________

Outside the UK 2  
Country (Please Specify): ____________________

33. Where do you expect to live and work in the long term?  
Please ✓ one box only

UK 1  
Go to Q34

Outside the UK 2  
Continue  
Country (Please Specify): ____________________

33a. Why do you expect to live and work outside the UK in the future?

34. What is your approximate annual gross pay before tax?  
If you are paid in another currency please provide an approximate figure in sterling. If you are self-employed, please indicate the amount of money you paid yourself out of the business. Please just state basic pay – do not include any bonuses or benefits in kind.

- Less than £15,000 1  
  £45-49,999 8

- £15-19,999 2  
  £50-59,999 9

- £20-24,999 3  
  £60-69,999 10

- £25-29,999 4  
  £70-79,999 11

- £30-34,999 5  
  £80-89,999 12

- £35-39,999 6  
  £90-99,999 13

- £40-44,999 7  
  More than £100,000 14
35. Which of the following best describes how happy you are in your current job...?

Please mark one box only

- Very happy [ ] 1
- Quite happy [ ] 2
- Not happy (please explain why below) [ ] 3

36. Thinking about your career path in the future, please read through the statements below and tick the main one that applies to you...?

Please mark one box only

- I intend to stay in this area of work and seek progression / permanent status in the future [ ] 1
- I am only doing this type of work because of a lack of other employment opportunities. I intend to pursue a different career path in the future (Please provide details below) [ ] 2
- This is a good job but I hope to pursue a different career in the future (Please provide details below) [ ] 3
- Other (Please provide details below) [ ] 4

PART D JOB HISTORY

This section is designed to give us a picture of how your career has developed since the end of your PhD award. We would like you to fill in the ‘diary’ on the next page. Some guidelines on completing the diary are provided below:

- Please complete the diary in chronological order since the end of your PhD award. Please insert a number for a month e.g. January = 01
- We are interested in everything you have done since the end of your PhD award to the present day.
- Please provide details on all jobs/activities that have lasted at least three months
- For periods that you have been working, please use the employment activity codes below to indicate the type of work you have been doing
- For periods that you have not been working, please use the other activity codes below to indicate what you have been doing
- If you went on maternity or sick leave and went back to the same employer, count the whole period as one job

Employment Activity Codes

01 Permanent teaching / research position in university / higher education institution (HEI)
02 Fixed term research position in university / HEI (postdoctoral research assistant, research fellowship)
03 Other fixed term teaching / research position in university / HEI
04 Other position in university / HEI
05 Employment in private sector company / self employed
06 Employment in public / voluntary sector organisation
07 Other employment
08 Unemployed / looking for work
09 Further study / training
10 Something else
<table>
<thead>
<tr>
<th>Dates</th>
<th>Using the employment /other activity codes provided please insert the code that best describes your situation at the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>To</td>
</tr>
<tr>
<td>Month</td>
<td>Month</td>
</tr>
<tr>
<td>Year</td>
<td>Year</td>
</tr>
<tr>
<td></td>
<td>Employment / Activity Code</td>
</tr>
<tr>
<td></td>
<td>If 10 please provide details</td>
</tr>
<tr>
<td>Month</td>
<td>Month</td>
</tr>
<tr>
<td>Year</td>
<td>Year</td>
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<tr>
<td></td>
<td>Employment / Activity Code</td>
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<td></td>
<td>If 10 please provide details</td>
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<tr>
<td>Month</td>
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<td>Year</td>
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<td></td>
<td>Employment / Activity Code</td>
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<td>If 10 please provide details</td>
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<tr>
<td>Month</td>
<td>Month</td>
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<td>Year</td>
<td>Year</td>
</tr>
<tr>
<td></td>
<td>Employment / Activity Code</td>
</tr>
<tr>
<td></td>
<td>If 10 please provide details</td>
</tr>
</tbody>
</table>
SECTION E: VALUE OF PHD TRAINING

37. To what extent has your PhD been useful in giving you skills that have been helpful in developing your career subsequently?

*Please ✓ one box only*

- Very useful 1
- Quite useful 2
- Not very useful 3

38. Please examine the skills / competencies below and indicate...

a) Which of these skills / competencies you developed during the course of your PhD
b) Which of these skills / competencies are most important in your current job (for those in employment)
c) Which of these skills / competencies should have been given greater emphasis during the course of your PhD to prepare you for work?

<table>
<thead>
<tr>
<th>Developed during your PhD</th>
<th>Most important in your current job</th>
<th>Needed greater emphasis during PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of specific subject area</td>
<td>01</td>
<td>01</td>
</tr>
<tr>
<td>Designing and building scientific equipment</td>
<td>02</td>
<td>02</td>
</tr>
<tr>
<td>Quantitative data analysis</td>
<td>03</td>
<td>03</td>
</tr>
<tr>
<td>Writing software / programming skills</td>
<td>04</td>
<td>04</td>
</tr>
<tr>
<td>Information technology systems</td>
<td>05</td>
<td>05</td>
</tr>
<tr>
<td>Research methodologies / techniques</td>
<td>06</td>
<td>06</td>
</tr>
<tr>
<td>Original / innovative / creative thinking</td>
<td>07</td>
<td>07</td>
</tr>
<tr>
<td>Problem solving</td>
<td>08</td>
<td>08</td>
</tr>
<tr>
<td>Knowledge of process for funding research</td>
<td>09</td>
<td>09</td>
</tr>
<tr>
<td>Knowledge of process for commercialising research / knowledge transfer</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Teaching / mentoring</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Project management</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Written / report writing skills</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Presentation skills</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Team working / communication skills</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Networking - making and maintaining contacts</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Self discipline / motivation</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Taking initiative / working independently</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Career management – planning your career</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Anything else (Please Specify)</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

___________________________________________________________
39. In your opinion which of the following most accurately describes how your PhD training has contributed to the development of your career to date?

Please ✓ one box only

Essential – A PhD is generally required for my job / career

Of some importance – A PhD is not a general requirement for my job / career but it helped me to get into my job/career and/or progress more quickly than I would otherwise have done

Of little or no importance – My PhD training has been of no material significance to my job / career to date

40. Overall, how satisfied are you with the quality of PhD training you received?

Please ✓ one box only

Very satisfied

Quite satisfied

Not satisfied

40a. Please provide any additional comments you would like to make regarding the quality of your PhD training?

41. In hindsight, if you were starting over again, would you undertake a PhD?

Yes

No (Please explain why)

42. Are you...

Male

Female

43. How old are you...

Please write in exact age: __________

44. What is your...

Nationality: ________________________
45. Since completing your PhD, have you undertaken / or are you undertaking any further study / training that has led / will lead to a qualification?
Please include any qualifications that you have already told us about earlier.

Yes [ ] 1 Continue
No [ ] 2 Go to Q47

46. Please provide details on each qualification below…

QUALIFICATION 1

Qualification: ____________________________ Subject: ____________________________
Institution: ____________________________ Funding Source: ____________________________
Start Date: ____________________________ End Date: ____________________________

QUALIFICATION 2

Qualification: ____________________________ Subject: ____________________________
Institution: ____________________________ Funding Source: ____________________________
Start Date: ____________________________ End Date: ____________________________

QUALIFICATION 3

Qualification: ____________________________ Subject: ____________________________
Institution: ____________________________ Funding Source: ____________________________
Start Date: ____________________________ End Date: ____________________________

47. We would like to compile some short case study profiles to illustrate the types of careers that former PPARC PhD students have pursued. STFC / PPARC will use this information to add interest to the statistics collected through this survey and to give current students a better understanding of different career paths after a PhD.
Would you be happy to be the subject of a short career profile?

Yes [ ] 1 Continue
No [ ] 1 Go to Section F (Page 15)

48. Case study material is being compiled in two ways. You can either write a short profile below or request to be contacted by a researcher who will undertake a short interview with you.

Please indicate which you would prefer?
Write your own personal profile [ ] 1 Continue
Short interview with a researcher [ ] 1 Go to Section F (Page 15)
49. Please use the space provided below to write your own personal profile or alternatively e-mail this to pauline.innes@dtz.com. A continuation sheet is provided at the end of the questionnaire should you need it.

**Guidance for Case Study Profile**

- Subject / place of PhD
- Your career history from completing your PhD
- Who is your current employer and what does the job involve
- How you are using skills acquired through your PhD in your current job
- Most important achievement to date
- What advice you would give to current postgraduate researchers to maximise career opportunities

Please let us know how to contact you as we may need to check some details with you

Name: ____________________________

Email: ____________________________

Telephone: ________________________
SECTION F: YOUR CONTACT DETAILS

50. Please provide your contact details if you would like STFC to send you an electronic copy of the survey findings, to keep you informed about its work or to be contacted by a researcher for a short telephone interview to prepare a case study profile. These details will not be passed to anyone else without your permission. No information you have provided in this questionnaire will be attributed to you personally (with the exception of case study profiles). All survey data will be reported in an aggregate format.

Name: ____________________________ Telephone: ________________

E-mail: ____________________________

Home Address: ____________________________

_________________________________________ Postcode: __________

Work Address: ____________________________

_________________________________________ Postcode: __________

☐ 1. I would like to receive an electronic summary of the survey findings
☐ 2. I would like to receive information updates from STFC
☐ 3. I am happy to be contacted by a researcher to collect a case study profile

Thank you for taking the time to complete this questionnaire.
Please return it in the pre-paid envelope provided; there is no need to use a stamp.
## Appendix III – Listing of private sector employers of PhD students

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>Description of Company</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accenture</td>
<td>Management Consultancy</td>
<td>250+</td>
</tr>
<tr>
<td>Advantech AMT</td>
<td>Satellite communication systems and technology</td>
<td>10-49</td>
</tr>
<tr>
<td>Autodesk</td>
<td>A software company, makes CAD software (computer aided design) for engineers</td>
<td>50-249</td>
</tr>
<tr>
<td>BP</td>
<td>Oil company</td>
<td>250+</td>
</tr>
<tr>
<td>Cametrics Ltd</td>
<td>A Cambridge based software development consultancy that develops software solutions for business in the high technology sector</td>
<td>01-09</td>
</tr>
<tr>
<td>Citi Group</td>
<td>Financial Services</td>
<td>250+</td>
</tr>
<tr>
<td>Coherent Inc</td>
<td>Laser manufacturer</td>
<td>50-249</td>
</tr>
<tr>
<td>Deloitte LLP</td>
<td>Accountancy &amp; consultancy firm</td>
<td>250+</td>
</tr>
<tr>
<td>Eads Astrium</td>
<td>Satellite Communications</td>
<td>250+</td>
</tr>
<tr>
<td>Goldman Sachs</td>
<td>Investment bank</td>
<td>250+</td>
</tr>
<tr>
<td>HSBC Bank</td>
<td>Financial Services</td>
<td>250+</td>
</tr>
<tr>
<td>IBM</td>
<td>Software development &amp; IT services</td>
<td>250+</td>
</tr>
<tr>
<td>KPMG</td>
<td>Accountancy &amp; consultancy firm</td>
<td>250+</td>
</tr>
<tr>
<td>Logica</td>
<td>IT services, software &amp; project management</td>
<td>250+</td>
</tr>
<tr>
<td>Metaswitch Networks</td>
<td>A provider of carrier systems and software solutions that are powering the migration of communications networks to open, packet-based architectures.</td>
<td>50-249</td>
</tr>
<tr>
<td>Nationwide Building Society</td>
<td>Building Society</td>
<td>250+</td>
</tr>
<tr>
<td>Prudential</td>
<td>Insurance</td>
<td>250+</td>
</tr>
<tr>
<td>Tandberg</td>
<td>Video Conferencing Equipment Manufacturer</td>
<td>250+</td>
</tr>
<tr>
<td>Tessella PLC (2 respondents)</td>
<td>IT and scientific consulting services to R&amp;D, science and engineering sectors.</td>
<td>50-249</td>
</tr>
<tr>
<td>Trainfx Ltd</td>
<td>Communications/passenger information systems for railway industry</td>
<td>01-09</td>
</tr>
<tr>
<td>Barclays</td>
<td>Financial Services</td>
<td>250+</td>
</tr>
<tr>
<td>MBDA</td>
<td>Defence systems manufacturer</td>
<td>250+</td>
</tr>
<tr>
<td>AccessPlus</td>
<td>Business Services - provides a single source procurement solution for companies wishing to reduce costs for print and marketing support services</td>
<td>50-249</td>
</tr>
<tr>
<td>Selex Systems Integration</td>
<td>Aerospace/defense Engineering</td>
<td>250+</td>
</tr>
<tr>
<td>Barclays Capital (2 respondents)</td>
<td>Investment Bank</td>
<td>250+</td>
</tr>
<tr>
<td>SCOR</td>
<td>Reinsurance company</td>
<td>50-249</td>
</tr>
<tr>
<td>MWH Soft</td>
<td>Water services software for water supply simulation, flood mapping and asset management</td>
<td>10-49</td>
</tr>
<tr>
<td>Nokia</td>
<td>Telecoms</td>
<td>250+</td>
</tr>
<tr>
<td>Objective Corporation Ltd</td>
<td>Software and Services Company</td>
<td>10-49</td>
</tr>
<tr>
<td>Punter Southall Limited</td>
<td>Financial Services, Consultancy</td>
<td>250+</td>
</tr>
<tr>
<td>Price waterhouse</td>
<td>Accountancy &amp; consultancy firm</td>
<td>250+</td>
</tr>
<tr>
<td>Company</td>
<td>Services</td>
<td>Employees</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Coopers LLP</td>
<td>Business services - management of programmes / services to out-sourcing of operations for clients</td>
<td>50-249</td>
</tr>
<tr>
<td>Serco Consulting</td>
<td>Business services - management of programmes / services to out-sourcing of operations for clients</td>
<td>50-249</td>
</tr>
<tr>
<td>Thomson Reuters</td>
<td>Information for business and business professionals</td>
<td>250+</td>
</tr>
<tr>
<td>Fundtech</td>
<td>Financial software and services</td>
<td>10-49</td>
</tr>
<tr>
<td>Apadmi</td>
<td>Mobile telecommunications consultancy and development company</td>
<td>10-49</td>
</tr>
<tr>
<td>QubicaAMF</td>
<td>Software/hardware for bowling industry (leisure)</td>
<td>10-49</td>
</tr>
<tr>
<td>Ikon Science Ltd</td>
<td>Software creator and quantitative interpretation (QI) services provider operating within the upstream services and technology segment of the oil and gas business</td>
<td>50-249</td>
</tr>
<tr>
<td>Quantum Energy</td>
<td>Engineering</td>
<td>01-09</td>
</tr>
<tr>
<td>VT Group</td>
<td>A government and critical support services company, providing engineering and other services, mainly to governments around the world.</td>
<td>250+</td>
</tr>
<tr>
<td>John Lewis Partnership</td>
<td>Retail</td>
<td>250+</td>
</tr>
<tr>
<td>Nokia</td>
<td>Mobile phone software development and manufacturer</td>
<td>250+</td>
</tr>
<tr>
<td>Unilever</td>
<td>Consumer goods (food and home and personal care products)</td>
<td>250+</td>
</tr>
<tr>
<td>Siemens</td>
<td>Manufacture, IT, CAD, Automotive, Defence, Engineering</td>
<td>250+</td>
</tr>
<tr>
<td>RBS</td>
<td>Financial services</td>
<td>250+</td>
</tr>
<tr>
<td>BNP Paribas</td>
<td>Financial Services</td>
<td>250+</td>
</tr>
<tr>
<td>Forbidden Technologies</td>
<td>Software - consumer web-based video editing, publishing and hosting services</td>
<td>10-49</td>
</tr>
</tbody>
</table>