科学技術政策研究所
講演録－292

博士人材等の能力育成に関するデータや情報の政策への活用

Utilizing survey data to develop government policy on doctoral graduates' skills development

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文部科学省 科学技術政策研究所
第 1 調査研究グループ

本資料は、2012 年 3 月 22 日（木）に科学技術政策研究所で行われた Iain Cameron 氏および Janet Metcalfe 氏による講演内容を、当研究所においてとりまとめたものである。

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「博士人材等の能力育成に関するデータや情報の政策への活用」

○ **日時**: 2012 年 3 月 22 日(木) 13 時 30 分～15 時 30 分

○ **講師**: Dr. Iain Cameron, Head of Research Careers and Diversity, RCUK Strategy Unit

Dr. Janet Metcalfe, Chair and Head, Vitae （同時通訳付き）

○ **場所**: 新霞が関ビル LB 階 201D 号室 科学技術政策研究所会議室

○ **共催**: ブリティッシュ・カウンシル

○ **講演趣旨**:

英国では、10 年近くに渡って博士学生やポストドクターに対する能力育成や強化に関わる取組み（transferable skills training,下記参照）が組織的に実施されており、世界で活躍できる研究者の育成や能力開発の実践と、関連するデータの蓄積や分析、政策への活用が進められている。

本講演では、英国においてこれらの取組に主導的に携わっておられるリサーチ・カウンシル UK 及び Vitae の担当者をお招きし、transferable skills training の内容やその支援体制、関連して実施されている調査内容の紹介と併せて、能力育成や強化に関連した取組みを通じて蓄積されたデータや情報をいかに分析し、政策に活用しているのかについて紹介いただく。

このような英国における実践内容、成果を紹介いただくことにより、我が国における今後の研究人材の育成のあり方、データの活用の方向性に関する示唆を得ることを目的とする。

＜参考 transferable skills＞

大学院教育において、博士学生が獲得すべきスキルは、大きく研究能力（research competence）と transferable skills に分けられる。特に transferable skills は以下の 5 カテゴリーが該当する。

1. 研究管理
   - プロジェクト管理、資源や機器の効果的な利用、情報管理と情報公開など
2. 個人的態度・資質
   - 知識習得の意欲、独創性、柔軟性、自己認識、自制心、イニシアティブなど
3. コミュニケーション
   - 目的に適った文章、相手にあわせた手法、研究成果の正当性の主張、理解増進、他者の学習の支援 など
4. ネットワーキングとチームワーキング
   - ネットワーク構築と維持、自己の役割と影響の理解、フィードバックと応答など
5. キャリア・マネジメント
   - 継続的能力開発、雇用可能性の改善、就職機会の発見、自己表現など

○ **講師略歴**:

(Dr. Iain Cameron 氏)

リサーチ・カウンシル UK(RCUK)のリサーチキャリア・ダイバーシティ部長。研究者のキャリアとダイバーシティについて、英国の各分野リサーチ・カウンシルにおける意見や取り組みを調整する役割を担う。特に、研究者の能力向上を目的とした、研究者開発に関する「ロバート・アジェンダ」(SET for Success 2002)の施行において主導的役割を果たし、研究者の社会移行・キャリア能力の開発をサポートする Vitae プログラムの設立と実施に貢献。英国ビジネス・イノベーション・技能省、および英国高等教育財政カウンシルやその他の研究助成機関との連携も深い。欧州委員会人材育成・流動性問題運営委員会における英国代表を務めるほか、研究者キャリアに関するその他の国際的ネットワークのメンバーでもある。

1977 年	エジンバラ大学(生物学士号)卒業
1982 年	グラスゴー大学 ウィルス学博士号修得
1982-1995 年	レディング大学所属ポストドクター研究員
1985-1990 年	ウィルス学研究所(オックスフォード)所属ポストドクター研究員
1990 年	リサーチ・カウンシルでの勤務開始
2005 年	リサーチ・カウンシル UK のリサーチキャリア・ダイバーシティ部長に就任。

(Dr. Janet Metcalfe 氏)

英国の研究者能力育成・キャリア開発支援機関 Vitae 代表。Vitae は、英国の研究基盤の強化を目指し、世界的に活躍できる研究者の能力トレーニング・開発支援を行っており、代表としてはとくに、組織の長期的戦略の策定、及び英国の Concordat to Support the Career Development of Researchers (大学、及びカレッジにおけるポスドク研究員のキャリア育成の枠組みについて 2008 年にまとめられた協定。以下 Concordat と略記)の遂行に対して責任を持つ。

Concordat の遂行に関連し、研究者キャリアに関するオンライン調査(CROS: Careers in Research Online Survey)と、PI 及び研究リーダーに関する調査(PIRLS: Principal Investigators and Research Leaders Survey)の運営委員を務める。また、研究者開発支援のインパクトを探る「インパクト・評価グループ」(Impact and Evaluation Group)の設立メンバー、さらに大学院における研究者としての経験に対する調査(PRES: Postgraduate Research Experience Survey)の運営委員でもある。

講 演 内 容

「博士人材等の能力育成に関するデータや情報の政策への活用」

司会:

それでは時間となりましたので、これより「博士人材等の能力育成に関するデータや情報の政策への活用」に関する講演会を開催いたします。本日はお忙しい中講演会にお越しいただきありがとうございます。本日は英国よりお二方の先生をお招きし、英国における博士学生やポストドクターに対する能力育成や強化に関わる取組みや、関連したデータの調査・蓄積や分析、政策への活用の現状についてご講演いただきます。

本日の講演の構成は、初めに 30 分間、ドクター・キャメロンに講演を頂きまして、その後 15 分間の質疑応答を頂きます。その後ドクター・メトカーフに講演を 30 分間頂き、お二人合わせて質疑応答を設けさせて頂きます。

それではドクター・キャメロンの講演をお願いいたします。

※以下、発表者の敬称略

Iain Cameron:

Good morning. I'm very pleased to be here in Japan. I've been here with the British Council helping organize this meeting. It's the second time I've visited and it's good to be able to explain to you some of the issues from Research Council's point of view in the UK. So, first of all, I'll say a little bit about the Research Councils and our funding and talk a little bit about some of the issues that are important to us in terms of training in research and development of researchers and doctoral students. And I'll be telling you a little bit about some of the tools or the instruments that we use. I won't go into a lot of detail because Janet will pick up some of the issues later on.

So I am Head of Research Careers and Diversity at Research Councils UK. You'll see at the top left of the picture (Slide 1), the strap line "Excellence with Impact" and that is a description of everything we do in the Research Councils. Excellence in terms of the research we've done. Excellence in terms of the research training and the Researcher Development we provide. And Impact because the research that we produce and the people that are produced through carrying out that research and training are the way in which the government sees that the economy will develop and, particularly at the moment, that the economy will be redeveloped and rebuilt.

The Research Councils UK is like an umbrella organization. We are not separate from the seven Research Councils in the UK, but when we work together in partnership, we use the term Research Councils UK because to describe that partnership. I mentioned Excellence for Impact, within that concept the three themes that we aim for as Research Councils are: to promote research which helps to deliver a productive economy, a healthy society in medical and cultural terms, and which contributes to sustainability of the world as a whole. The government department which is our parent organization is the UK Department of Business Innovation and Skills. It combines business, innovation and skills throughout the economy, not just higher education, and it covers research and research training in the universities and research institutes.

In terms of funding, Research Councils spend a total of 2.5 billion pounds each year. In a quick calculation, I think that's about 300 billion yen. The important thing in research budgets in the UK is that since 2011 for a 4-year period of government spending which our budget stays level in cash terms, whereas in a lot of other areas of government spending, the funding has been reduced by up to 25%. So in common with a number of other major countries, we see that research is very important in terms of the future economy. Nevertheless, although it's been protected, we still have to keep making the case to the government that research is important to the economy because we cannot assume that governments will always accept that position. The seven research councils on the left there (Slide 3) cover all areas of research, from the medical, physical sciences, through to the natural environment, economic, social research and the arts and humanities.

This is a diagram (Slide 4) just showing the distribution of Research Council funding in the UK. From left to right, we have the top 30 universities in terms of funding from the Research Councils. The different colours are the funding from individual councils, but you see very clearly that there is quite a high degree of concentration of funding or research grants. Indeed, if you looked at the total funding of universities, you would see something similar. But the top six universities – Oxford, Cambridge, Imperial College, University College London, Manchester and Edinburgh – those are the top six universities in terms of research in the UK and, indeed, in terms of PhD training funded by the Research Councils. And those six universities take about 20% of our funding. And in total, the 30 universities on that graph take about 80% of Research Council funding. There's a total of 165 universities in the UK.

I'm just going to give you a picture of the numbers of people that we train. Into PhD training, we have people coming clearly from the British education system, but about 42% of our PhD students come from other countries. About 13% comes from other European Union countries and the remainder of that 42% comes from the rest of the world. Now, that number has been increasing in recent years. We produce nearly 17,500 PhDs every year – it depends which year you actually look at; I think it's probably slightly lower, at about 16,500 at the moment. And of those graduates the Research Councils fund about 5,000. So it's about a quarter to a third of the total that are funded by the Research Councils and about 70% are in the STEM (Science, Technology, Engineering and Math's) subjects. If you look at what we would call postgraduate researchers, that's PhD students, in total we have something like 72,000 full-time or part-time students active in the UK at any one time. And if you look at the next set up, research staff, these are the researchers who are working on research grants funded by the Research Councils or by other bodies, we have about 42,000 of those in universities. And, again, like PhD students, we fund about a third of those in the universities. And then teaching staff, the total in the universities is about 94,000. So there's about 130,000 research staff at the universities and 16-17,000 new PhDs every year.

We have, I think as many organizations do, a clear set of strategic documents in the Research Councils. I've just picked out here the statements we make about high level skills to emphasize our strong support for and promotion of high level skills, which really means at doctoral level and post-doctoral or other research staff skills. The reason we support PhDs in the UK is for two purposes. One is to support sustainability of the UK research base, which is the universities and research institutes, the second is to benefit society and the economy. We say that because half of our students actually work outside of university after they graduate we're not funding PhDs just for the purpose of carrying out academic research.

There is a bit more detail at the bottom of the slide (Slide 6). It's important to us to attract the best people into research, but also importantly, we need to make sure we have a critical mass in particular strategic areas. One of the approaches we use is Doctoral Training Centers and a I will say more about that later. Another effect is to produce a slightly greater degree of concentration of funding. I think an important point to emphasize that the Research Councils don't typically support many Master's students. I think the position of Japan is a bit different in terms of progression to PhD, but we don't automatically necessarily fund a Master's degree as part of that progression to PhD. But what we are interested in is that the quality of that training, the quality of people we produce is very high and, indeed, that's more important than the absolute number. If anything, we will fund quality in preference to quantity.

I mentioned that our Research Councils vision is about producing Excellence with Impact and what we want is for the UK to be well-known for the impact, the value to the economy, the value to business, the value to ongoing academic research. We want to be recognised for impact as much as for the excellence of the research we produce. We believe that the UK could be better than it is currently at exploitation or research and development from basic research. But to do that, it really does mean continuing to invest in the best research, the best people and, indeed, the infrastructure that supports them, and also encourage them to think about how that research can ultimately benefit society and the economy. There's a big difference for us between thinking about how research can have impact and carrying out research which is very applied or very linked to development.

This diagram (Slide 8) is slightly complicated, but it's one we use in the Research Councils to describe what we call Pathways to Impact. So whenever a research proposal comes to the Research Councils, the proposal needs to explain in a plan as to how they will think about communicating the potential of their research or communicating it to the general public in terms of public engagement or how it could potentially be applied. Within that, you may not be able to read it, but there's one section actually called 'Training highly skilled researchers' which is clearly one of the impacts of this, but if you think about any of these other impacts, whether it be attracting research and development investment or commercialization, for instance, there are definitely skills that people need to have if they're going to carry out those things. So any aspect of Pathways to Impact could involve particular skills that researchers need to know depending on what sort of perspectives or what responsibilities they might have or plan to have.

Another feature of the UK research system, which affects the development of researchers as well, is what is now called the REF in the UK, the Research Excellence Framework. Many of you will be aware of the Research Assessment Exercise which has been going on in the UK for 20 years or more. And that exercise always assessed the quality of research being produced. The REF is not run by the Research Councils. It's run by a partner organization of ours, the Funding Councils who fund teaching and research in universities. Now this new REF has three components: the output of research, 65% of the scoring comes from that; there's impact as in the use that has been made of research which counts for 20%. Impact may arise from research which was funded quite a number of years ago, but universities will produce case studies of what they have done and that will be scored as part of the assessment; and there is also a section on environment, which covers 15%. In that environment section,

there are a number of areas where the development of research staff and researchers is covered. So that a university or department would need to provide evidence of how its staffing strategy relates to its research strategy and how it carries out its research. It needs to give evidence about the support for the career development of its researchers at all stages of their careers. So it's not just about the PhD level. You're talking about the training and the development of researchers throughout their career. You're talking about the quality of training and supervision of postgraduate students and then, finally, the equality and diversity. So there are some major issues in the UK if we want to keep people thinking in terms of are we getting the best students and the best researchers into research from all different backgrounds in the UK.

Now this diagram (Slide 10) is just meant to show direction of travel for our national activities in support of researcher development. We have been putting a lot of effort into this area for a long time. In the timeline, you can identify in a lot of the actions and documents to which Janet Metcalfe will be referring, starting from 1997, when we had a major research careers initiative in the UK. There are two very important people in all of this. One is Gareth Roberts, whose name comes up often, who was Vice Chancellor of Sheffield University, but he also produced a major report in 2002, which I'll refer to in a minute. It is called 'SET for Success' and is a very pivotal report for us in terms of development for researchers. Also Gordon Brown, our previous prime minister, who made sure that government-funded research was doubled in the period from about 1998 through to 2010. Research Council funding also doubled during this period. Other initiatives illustrated include at the European level the Charter and Code for Researchers. We have several surveys to monitor progress: there's one for Postgraduate Researchers; there is a survey called Careers in Research Online Survey, which Janet will mention, and a survey of principal investigators. So with all of these, we have ways of looking at what researchers are doing and what their views and perspectives are. I'll mention specifically the Concordat which we have for the career development of researchers. I'll have some slides on that in a minute.

At the bottom of the timeline we have a number of different programs that we've run over the years. The UK Grad Program back from 2003 was focused on the development of PhD students. The Vitae program which Janet Metcalfe heads, which is responsible for the development of research staff as well as PhD students. And we have various publications that Janet will mention such as 'What Do Researchers Do?', about their employment characteristics etc., where they work and how their development can be helped by a 'Researcher Development Framework'. So all these things link together and the important point I want to make is we've been working on this new, very systematic way for a number of years and all of these different aspects really build together into something quite significant over a period of time, and as we move forward there will be more, possibly different things added and it may also become more streamlined.

So, in summary, in terms of a very top level point of view, if you go back to prior to 2002 we had a steer from government that things were going to be happening, but there wasn't a lot of extra money or practical support to develop the agenda. And then in 2002, we had the major report, which I'm going to talk about in the next slide, the Roberts Report called 'SET for Success', and that report had actually persuaded the government to give money for the development of researchers. And as we move forward into the future, we will see a shift away from central support and funding towards devolving the funding to universities and expecting the universities to make more provision and do more directly themselves.

So let me tell you about, SET for Success, Gareth Roberts' report back in 2002; What that report identified was that we had serious problems in the UK in terms of training researchers, particularly for industry and business, and we had problems with attracting people in to research training. The PhD

stipend was low. We had deficiencies in transferable skills and basically, as I said, the graduates really weren't as prepared for business as they should be. And neither were they prepared as well as they could be for academia. And then, as far as research staff were concerned there was a lack of clear career structures and career prospects in certain universities were uncertain.

Since that report, quite a few things have been put in place which work together. I'm not going to talk about everything on this slide (Slide 13). The first point, enhanced skills and career development training, is really the main part that I've been working on in recent years. But we have also got minimum standards for research programs supported by our Quality Assurance Agency for HE. In terms of stipends for students, we've doubled those in the last 10-12 years. So the stipend is now 13,500 pounds, which, I think, translates to 1.7 million yen per year per student. Specifically about students and support of PhD training - there has been quite significant change in the UK since the early 2000s. We have seen many new doctoral training centers being created. In the Social Sciences, in particular, the Economic and Social Reserch Council has created centers which often involve disciplines and groups of universities working together. In the Engineering and Physical Sciences, there are centers focused on specific topics with a cohort of researchers being trained in those areas. We believe it is important for the UK to have a critical mass of people being trained in a particular area and this may involve a close partnership between a Research Council and the universities that have funding. Also, increasingly we are expecting more from the universities in terms of training. We are expecting researchers to be more employable, that is that they are more capable of working effectively as researchers in whatever job they end up. In terms of the PhD itself, the British PhD historically has been about three years long. Increasingly, Research Councils funding is aimed at a four-year PhD, which is a longer period for more in depth and variety of training, possibly more taught components within a PhD, although the prime objective is still research. I think the most significant change we're in the middle of in terms of researchers' career development side, and transferable skills, is the expectation that the universities take much more responsibility for embedding that into the normal programs, the normal development of PhDs.

I'd now like to speak a little bit about the Concordat. The Concordat is a UK document produced in 2008 and it spells out very clearly a number of different principles that we aim for in terms of the career development for research staff. The purpose of this slide (Slide 16) is really to link what's happening in the UK to what's happening in the European Union. In Europe, there was published in 2005 a Charter for Researchers and a Code of Conduct for the Recruitment of Researchers, which is an attempt by the European Union to improve the quality of attention to careers of researchers across the whole of Europe. Now, the problem we had in the UK is that we were already doing a lot of the things that are contained in this Charter and Code. We therefore produced our own document (The Concordat) which is a very different sort of document and it's aimed at helping UK universities to move forward starting from a position which is in some ways more advanced that in other countries in terms of developing researchers. However, we wanted to establish a very clear link between the two by stating that by adopting the Conccordat we were also endorsing the European Charter and Code. So there's no real difference in terms of objectives, but in terms of implementation in the UK, we do it differently.

The left hand panel here (Slide 15) has the seven principles of Concordat. I haven't got time to go into a lot of detail, but the document is easily available on the Research Councils website or on the Vitae website. The areas that are important, I think, for researchers are all very clearly listed there. Recruitment is important so that the best people are selected, but it's also very important to address the induction of researchers and the way that they are brought into research, to consider how they are valued by the university, the way they're supported and how their careers are developed by the

university. Researchers own responsibility for their development is also a strong feature of the Concordat. It's important that all of these things are addressed. The idea is that organizations – the Research Councils, other funding organizations, universities – have all signed the Concordat and we're all to work together to collectively improve and develop researcher's careers.

One particular principle I'm picking out just for example is Support and Career Development. The principle itself says that we want to produce researchers who are equipped and are given the support so that they can actually be, as researchers, adaptable and they can be very flexible because the modern research environment is an increasingly diverse one, particularly in UK universities where a high percentage of researchers are from overseas. People have to work in inter-disciplinary environment. They have to be more mobile than in the past. They are working in a global research environment. A lot of things have changed, actually, from the point that their supervisors or their professors were trained. So it is important that these things are made very clear.

Now, one bit of survey information that I just wanted to include is this (Slide 19); the top part of this diagram shows a survey of universities which was published in 2010. One of the questions asked was did they have a a human resources strategy for their research staff. What we found was that 70%, actually had a strategy in place and there were very few actually that didn't have a strategy in place or being drawn up - 30% were drawing one up. So that's quite significant, actually, and certainly some of that is the influence of the Concordat.

Another link with the European Union I just wanted to mention is a badging process that the European Union introduced in 2008. We've adopted this in the UK, in part because it provides a link with what's happening in Europe, but it also provides a badge of progress for a university in terms of its attention to the development of researchers and its strong links with Concordat. So we've taken it almost as a national exercise as well as being part of what the European Union does by working with universities. We have now 50 UK universities who have the badge and can demonstrate that they are effectively looking after the careers of their researchers or at least are making progress towards that. Now at the moment, there are only 30 institutions or universities in the rest of Europe, who have this badge. It is something that's still growing. We are pushing the European Union very hard to increase those numbers in the rest of Europe because it's important to us that it's seen as something valuable.

I'll mention a few of the initiatives we have in the UK to make sure that quality is being maintained and developed in terms of researchers. So in terms of postgraduates, we have the Quality Assurance Agency, which has a very strong role in higher education and it has a code of practice in place. This part of the code of practice relates to doctoral degree programs and every university is required to adopt this code. The code also incorporates a statement of skills development from the Research Councils, an area over which the Research Councils have quite a significant influence because of the volume of our funding. Now I'm not going to talk in detail about the code which is in fact being revised at the moment. I'm a member of the panel that's overseeing that revision and the new version is currently open for consultation. Just to give you an idea of what's in there; it contains indicators of what the QAA calls sound practice. These are the things that a university should be doing if it's training its PhD students effectively. I have picked two particular indicators as examples. The first one is about making the opportunities for personal and professional development available. This is about identifying the individual needs of students, agreeing between supervisors and the students what courses, what training, what development the student needs and regularly reviewing that. This is fairly normal, if you like, in terms of HR practice for employees , but it's something that a lot of people felt

was not always properly in place for PhD students in universities. So it was important to say that's a strong indication of a good, well-functioning PhD system. The second indicator is about maintaining personal progress. One of the important things for students is understanding and being able to articulate the skills that they have and the recording process is part of that. From a Research Councils point of view, we want to focus on placing our funds in the best places for people to be trained, but we want to have an assurance that the universities in general have a good level of processes in place for the development of those PhD students. The QAA code helps to give us that assurance.

Now, the Researcher Development Framework I mentioned. I'm not going to say a lot about this because Janet will mention it. But I did want to mention it's importance to the Research Councils because it's a methodology for pulling together a lot of the skills or attributes or competencies that researchers need and being able to present them in an attractive way. We're actually very pleased that Vitae has been able to develop the RDF to the stage where it's beginning to be used by UK universities. Although it's not being used universally at this point in time, its use is growing. It is important to note that although we developed it in the UK, Janet has also been working with some other countries and there's a pilot project under way with the European Science Foundation to test out whether our approach to research and development through the Researcher Development Framework can be translated to other countries. This would help to validate that we've got something good and it also means we may be able to share it in some way. Janet will say more about that, but I just wanted to say, from a Research Councils perspective, that this is potentially very important in future.

Another thing I just wanted to mention in relation to surveys is that in addition to the surveys I mentioned in Slide 10 the Research Councils carry out surveys of users of research, mostly industries and businesses who directly collaborate with Research Councils projects. Their view generally is that Research Councils are quite effective at meeting the needs of users. They were all asked how confident they were that we in the UK had the right post-graduate skills to carry out effective research because, like in Japan, a lot of businesses, particularly in certain sectors of industry – pharmaceuticals or aerospace or engineering – recruit a lot of PhDs. What we found was that 59% of respondents to the survey were either very confident or fairly confident that the post-graduates had the skills to support the healthier society. A slightly lower proportion, 57% were confident that in terms of contributing to building a more sustainable world (one of our overarching themes), we have the right skills. In terms of the UK being more productive the proportion is a bit lower at 54%. This survey may be telling us that we have a little bit more to do in the UK to actually make sure that either our researchers are capable of developing that sort of productivity in the economy based on research or that we need to communicate that better to different sectors of business.

Now, I just wanted to give on further example of evidence. We recently carried out a review of the progress that we've made with the Researcher Development agenda and funding that we started with the Roberts Report 'SET for Success' in 2002. One of the recommendations from the review, basically tells us that the UK should actually be developing systematic and more frequent interactions between organizations so that we're actually focusing on employment needs as the driver fro future skills training. So it's the same sort of message that we're getting from a lot of other areas, that actually the link between research and other areas in industry, how research is used, how people are transferred between universities and business, and how people perform as researchers in their appointment, that's the thing that really matters, and we do need to think hard about whether it working well and whether there obstacles to that happening. So there is a lot of work to be done in the Research Councils to understand as to how effective we are at getting that transfer.

I just wanted to really finish off with a couple of slides on progress. Over the years we've asked universities to give us reports on the use of what we've called the Roberts Funding, and the

transferable skills supported through the Roberts Funding. By analyzing those reports from 2009 compared to the starting point in 2004, you find that in 2004, about 10% of the universities that responded to the survey - that's about over 100 responses - were making fairly extensive provision for transferable skills. By 2009, 70-80% - quite a high proportion - had extensive level of provisions. So there is a big change in the level of provision of transferable skills and development for PhD students. Whereas for research staff, again, in 2004, maybe 10% or a little bit less had some extensive provision in place for career development of researchers. By 2009, still, only about 30-35% of universities had that sort of provision. So what it tells us is that we've made a lot of progress on the PhD side, but there's still a lot of progress to make on the research staff side, so working with the universities, that is the area that is really important to us moving forward.

Now this is a diagram I've used over quite a number of years (Slide 29). There has been funding available for a number of years that goes into the system. We have the framework of policy documents – the Concordat, the recommendations that we got from the Roberts Report about career development and skills training; documents like the QAA Code of Practice for PhD students; that sort of guidance universities have about what sort of things are expected. The organization, Vitae, exists to work with universities in order to help build the capacity to implement these expectations. And then there are a lot of practices supported through conferences, policy forums and regional hubs, which are networks of universities in different areas of the UK. There are also various reports, feedback and monitoring processes in place which allow us to measure what is happening, and that feeds back into how funds are used in the future. As I've said, the funds, initially, were held centrally and pass out by the Research Councils, but increasingly in future, the universities will have those funds coming in through normal research grants or funding for PhDs in the UK.

So some of the future challenges, from the Research Councils' perspective, are about ensuring that we engage with research staff themselves, with employers and in terms of, more generally, the users of research. That's not just industry, but government and policy developers actually use research outputs. It's important for us to maintain career development because in the financial situation we're all facing at the moment, it can be much more difficult to justify doing some things which some academics might feel still are peripheral to the main objective of carrying out research and producing papers. We have an issue specific to the way we've done funding in the UK; we're now moving from a ring-fenced skills funding paid centrally to universities, to embedding the funding into the normal flow of research grant funding and PhD training funding, that flows into universities, so universities have to decide to create the budgets to do various things they believe are important, rather than having the funding provided centrally and ring-fenced so that it has to be used for skills development. But it's really important, if you devolve the funding like that, to make sure that we have some way of monitoring progress and making sure that the whole system is becoming sustainable and measuring the impact that it has. At the end of the day, the question that we have to answer is whether we're demonstrating that the PhD graduates and the research staff that we develop, are of real value in terms of their employment, whether it be academic employment or business, industry, government or third sector employment. And ultimately, the economy has to benefit. I'm speaking today, the day after our Chancellor of the Exchequer has just had his annual budget announced and we're only halfway through our term of parliament. By the time we have elections for our next parliament, the government will be looking at how money is spent. We are really going to have to demonstrate progress and show that the development of researchers is actually on track, making a contribution to the economy, and able to make an increasing contribution. That's the sort of message you get from government that it's looking for that assurance that money on research has a real value to the economy as well as funding the long-term research that operates in the UK and the long-term development of people.

So I think that’s the aim of what I wanted to say. Thank you for your attention.

司会（MC）：
キャメロン先生、ありがとうございました。
それでは只今の講演についてご質問をお受けしたいと思います。ご質問がある方は挙手をお願いいたします。
Thank you very much, Dr Cameron.
Now I would like to invite questions from the floor. Please raise your hand if you have a question.

Q1-1:
I have a question on the slide of Independent Review of Distance Travelled. You mentioned that in 2009, 70-80% of research organizations, including universities, actually provided transferable skills programs. Do you have data on the number of participants in such programs? I mean, I understand that universities are increasingly providing such programs, but another issue is whether or not young researchers are actually aware of it and attending such programs. Therefore, I’m interested in the participant numbers.

Cameron:
I don’t have detailed information on the participation rate of individuals in universities. One of the reasons is that what we expect the Roberts funding to be used for is for universities to provide two weeks of training per year to researchers. That was why the Research Councils funding was put in. The problem we have is if we then ask a university what they have done, they will tell us all the researchers have got the training. So I don’t really have a picture. Janet might be able to say a little bit more. Another problem too is that it’s not just attending a training course that shows if someone is developing as a researcher. Yes, going on a particular training course for a particular purpose may be useful and helpful to them, but quite a lot of the developmental learning may happen through other forms of interaction with other researchers or other people in the university, or it may be through thinking themselves more deeply about how they learn and how they learn from that training. So it’s not as simple as just counting people who have gone on courses.

Q1-2:
Thank you very much. The other question I have is on the last slide, Future Challenges, funding mechanism will be changed or is being changed, according to your presentation. I’m not quite sure what it means, the change from ring-fenced funds to embedding funds. My interest is does it mean that funding, actual spending will happen at a departmental level rather than institutional level? Is that what you mean?

Cameron:
Not quite. When we started putting out money for transferable skills and career development training, what the Research Councils did was based on how many PhD students and how many research staff we supported in each university, and we gave them roughly 800 pounds per student to develop that transferable skills and career development. But what we did was we paid it as a single lump sum of money not to the department, but to the university. It was then up to the university to decide how to use it. They could use it centrally and strategically, or they could devolve it as sums to the departments,

although initially the universities that devolved it to departments found it more difficult to work with. So keeping it central was important initially to make things happen, to make courses happen that were not already happening. But then what was gradually happening was that some universities were devolving more funds. What we've now done is we've stopped paying that money centrally to universities, so we no longer pay the 800 pounds per person separately. For PhD students, what we've suggested to the universities is that they increase the fees charged to PhD students to cover the transferable skills funds. We suggested was that they raise them by 200 pounds. The reason we said 200 is because the previous funding of 800 pounds from the Research Councils was the only source of funding, but we only support around one-quarter of the students. If universities added 200 pounds to the fees for all students, they should be able to recover the same amount of money overall. They then have control over that. But the individual university will decide how it allocates that funding, some universities will keep it centrally, so the Vice-Chancellor or a senior Pro-Vice Chancellor Chancellor will keep control of the funds. In other instances, it will be devolved to departments. It just depends. Every university has its own way of doing finances. So I hope that helps.

司会（MC）:
他、ご質問はございますでしょうか。
Are there any other questions?

Q2:
包括的なお話をありがとうございました。初めの方でパスウェイズ・トゥー・インパクト(Pathways to Impact) のお話がありました。これについて少し補足をお願いしたいと思います。
具体的には、このインパクトを実現していくためには、リサーチ・カウンシルがグラントへのいろいろな応募の中からこのインパクトに適したものを選ぶというプロセスも必要だと思います。また、今後はリサーチ・カウンシルのサポートが行われるさまざまな研究が、英国社会の糧になっているということを証明するということも必要になるかと思いますが、その両面でどういう方法をとられているのでしょうか。
例えばアプリカンツというのは学問的効果の他に経済的な効果､社会的な効果を自分で記述したりするのでしょうか。それを評価する側は本当に受けとるのか、それとも別の試算下で評価をするのでしょうか。いろいろと難しい問題があるかとは思うのですが、その経過をお話し頂ければと思います。
Thank you very much for your comprehensive lecture. I would like you to talk a little bit more about Pathways to Impact, which you refereed to at the beginning of your lecture.
As far as I understand, in order for such impact to be achieved it is important to incorporate an impact element in the selection criteria for the research grants provided by the Research Councils. Also, I understand that it needs to be demonstrated that the research which is funded by the Research Councils delivers benefits to British society. Could you tell us how this is ensured in the UK?
For example, are applicants for the research grants required to state the economic and social benefits of their projects, as well as academic ones, in their proposals? If yes, do the selection panel have any specific measures to evaluate them? I think these are complicated issues, but would be grateful if you could add some comments.

Cameron:
Yes. The process for Research Councils is that when an academic in a university applies for their

research grant, they are asked to fill out an impact plan as part of their proposal. We are certainly not asking them to say that this piece of work will lead to this product in five years time. That's not what we're asking at all. What we're asking them to think about is, if they plan for a particular outcomes from their research and think about who might benefit, who might be potential users of the research and how they might maximize the likelihood of that research, when it's produced, being of value or being known about and visible to people that might use it. So we're asking them to think about the route or the pathway towards the impact. That's the important part for the Research Councils. It's why we called it Pathways to Impact, actually, because there is a very big debate with academics in the UK about what impact actually meant and some people were very concerned that we were going to stop funding blue skies research and only fund applied research. And that's not the case. We fund blue skies research, speculative research just as much as we always did, but we want universities and other applicants to think about it a bit more than they have in the past, how the impact might occur. Now, once the proposal comes into the Research Councils, that impact statement is just part of the peer review process. We don't assess it separately. It helps to inform the peer review process, so it sits alongside excellence. The main criterion is excellence, and, if you like, if you've got two projects where the excellence is identical, then, in theory, you could say well the one that has the more likelihood of impact might just be preferred. So that's the sort of way it works. When it comes to actually assessing the impact, it may be that that will come up through the Research Excellence Framework. That exercise is not run by the Research Councils, as I said, it's run by, a body called HEFCE, the Higher Education Funding Council of England, or in Scotland, the Scottish Funding Council. In the REF the four most important publications or outputs from the research are assessed. The university will also have to produce case studies on the impacts arising from the research. The REF operates on the basis of groupings of different disciplines. So a university will produce case studies of maybe how some of its work in medical research has been translated into new forms of patient care or how maybe a piece of social science research has been picked up and used in government policies. So these are the sort of case studies that the Research Excellence Framework will be looking for. So I think it comes down to Research Councils allocating funds on the basis of promised quality and then the research evaluation framework can bring in an aspect of looking at the outcomes from research.

Q3:
Thank you for the deep insight into the policies of your organization. And I want to ask a question on Indicator 14. You mentioned you provide research students with appropriate opportunities for development. I just want to ask, do you have or have you identified dedicated staff within the universities who interact with the students because it's quite a difficult task to interact. To have staff interact with the students. They need the time and they need to translate their knowledge back to the students. So is it, how do you identify them?

Cameron:
Well, certainly, I would say some of my colleagues from British universities here probably know exactly how this works. I don't know who all these people are in every university. I know some of them, but the important point is the university does identify people and there are several different levels. I mean, a typical sort of university, a medium sized university may have somebody who is responsible for the development of staff throughout the university. There may be somebody who has a specific focus on research staff, those that are at an early stage or whatever, and maybe others who are

working with PhD students. There may well be a staff development office and it may be that the Human Resources department of the university will be responsible for monitoring the development of researchers. But also you've got the supervisors. So it's not a simple answer. The supervisor, too, is important for PhD students or the principal investigator in terms of research grants. So it's important that a number of different people are engaged. Many universities tell us through the reporting that we have had in place that they do have those structures in place and that different parts of the university are cooperating together so that the HR part of the university, the staff development part, the graduate school part, supervisors are all coming together because the support that the student researcher needs isn't going to come from one place. So I think in the best functioning university, it will all work very well, but it's not something Research Councils can actually do, but we expect universities to be effective to support people.

Q4-1:

ありがとうございました。2 点質問があるのですが、1 点目はアカデミック・インパクトについてなのですが、トランスファーラブル・スキルズのようなものをやった時に、研究活動にプラスに働くというようなことがあるのか、例えばアカデミック・インパクトをもたらすということがあるのかをお聞かせいただけますでしょうか。

それはなぜかというと、ともすれば日本では研究・アカデミック・インパクトを高めるためには、トランスファーラブル・スキルズのようなことをやはり研究以前にしなさいと言われることがあるのですが、トランスファーラブル・スキルズを育てることによって、アカデミック・インパクトが高まるというようなデータがあるのかどうか。そこのあたりについてひとつお聞きしたいというのが第 1 点です。

Thank you very much for your lecture. I have two questions. My first question concerns academic impact. Could you give us some comments on the issue of whether academic impact can be achieved through Transferable Skills training?

I am asking this question because it is often said in Japan that the training for enhancing skills such as Transferable Skills are not beneficial for enhancing academic impact. I am interested in if there is any data which shows academic impact can be achieved through enhancing the Transferable Skills of researchers?

Cameron:

I think that first question; I will leave that to my colleague Janet Metcalfe. She will maybe say something to that when she talks.

Metcalfe:

The quick answer is yes. We do have evidence of how investing in the professional development of researchers produces better research and academic impacts. We've developed an impact framework which allows institutions to evaluate the impact of their training interventions. We have evidence that we've improved research outcomes, applications for grants, fellowship awards and employability of researchers. It's not comprehensive information, but we're slowly building up a sufficient collection of case studies that can persuade academics that there is value in doing professional development.

Q4-2:
ありがとうございます。
2点目の質問なのですが、例えば社会にインパクトを与えようと思った時に、日本などでは企業で教育をした方がいいのではないかとも考えられます。なぜ大学院で社会に役に立つ、社会にインパクトを与える人材を育成しなければならないのか、というような質問が企業からよく出ることがあります。
人材育成機関としての大学院の特徴というか、強みというものについてお聞かせ頂ければ、どういうものがあると考えていらっしゃるかについてお聞かせ頂ければ幸いです。
Thank you for your comments.
My second question is about the role of Graduate Schools in developing human resources. Some people in Japan think, and I often hear some business people say, that the responsibility to develop human resources who can create social benefits lies with business and industry, not with the Graduate Schools.
What are the strengths of Graduate Schools in providing human resources training and development programmes?

Cameron:
Right. I'll focus on, let's say, PhD students because of all PhD students produced by a typical university, we know that more than half of those students work outside of universities, but they work in a whole variety of different jobs. Some of them are in the sort of corporate environment you talked about. Others work in government. Others are working for themselves, independently employed. Some work in small companies, large companies, a lot of different areas now. Janet will probably say something about this, but we do know something of that whole range. What is important is that the PhD student is able to effectively communicate with others, particularly people who don't immediately understand their discipline. The student will have a very deep knowledge of their area, but they may be working in an area where they have to apply that working with somebody from a very different discipline. They also need to be able to articulate the skills they have. A PhD student will be expected to be creative and innovative; you expect them to be able to seek out resources and to tackle problems that are new and there is no clear route to an answer. So those are all the sort of skills and those skills can be applied in a lot of different areas. So I think from a people point of view, you can ask what can a university produce? Part of it is about producing those people with that ability to be effective, to use their research background as well as their own attributes, their own capabilities, their ability to tackle problems. Problem solving is certainly something that features quite strongly at a high level and what a PhD student should be able to do. Janet will talk about some of the surveys and things we have, which actually do tell us something about the skills that PhD students have. I hope it will help you understand a bit more.

司会（MC）：
次の時間にも質問の時間を設けておりますので､追加のご質問がございましたら次のセクションが終わった後に頂ければと思います。それではキャメロン先生、ありがとうございました。

それでは次の講演に移らせて頂きます。続きましてはドクター・メトカーフ先生に講演を頂きます。それでは先生、よろしくお願いいたします。
We will accept questions from the floor after the next session, too. Thank you very much, Dr Cameron, for your lecture and comments.
Now I would like to welcome Dr Janet Metcalfe as our next presenter.

Metcalfe:
Good afternoon. Thank you very much for the invitation to speak and also for your attention. I've been asked to talk about the surveys and instruments that we have in the UK that can inform policy making in the area of development of researchers. But first of all, I want to tell you a little bit about what Vitae is. Our vision is for the UK to be world-class in supporting the personal, professional and career development of researchers (Slide 2). We are funded by the Research Councils UK to work with every university in the country and we work primarily through regional Hubs and every university is a member of one of those Hubs. And the four ways in which we work are:
1. working at a policy level. As you have seen from Iain's presentation, we have what is described as a 'blizzard of initiatives' around researcher development, so one of the things that we do is to help institutions to make sense of those, to bring some coherence to them and also to give universities a platform by which they can talk directly to the policymakers in a single voice. It is bringing policy together in a way that's most effective in terms of its implementation.
2. We work directly with the universities to help improve their provision, and that is through sharing practice mechanisms – we have a database of institutional practice that is searchable, we have databases of trainers and resources, we develop materials, we have package programs such as *The Effective Researcher,* which are short 3-day programs that institutions can use in terms of putting programs on for their researchers, *Broadening Horizon's* which is about helping researchers look at their careers more widely, and we have a whole series of events and ways in which we can support the various institutions.
3. But we also work directly with individual researchers, primarily through our website where we have comprehensive resources for those postgraduate researchers and research staff in terms of how they can develop their own competencies, and information on how they can progress their own careers.
4. And then finally, picking up the conversation we had earlier about impact, it's so important to build the evidence of the impact of developing individual researchers because we have to be able to demonstrate to policymakers that this initiative is important, to institutions so that they will put strategic investment in this area, to supervisors and principal investigators so that they will encourage their researchers' professional development, and individual researchers. There are a lot of people who are looking for evidence and justification for investment in this area. So we build the evidence base in terms of impact of training and developing researchers, but also the impact that individuals have on research outcomes, on society and the economy, and also to identify the career paths of researchers so that we can provide researchers and institutions with the knowledge of and the opportunities that are open to individual researchers.
In the main body of my talk, there are three different sets of projects I want to talk about (Slide 3 – 1.

Statutory Surveys, where institutions are required to be involved in these, 2. Voluntary Surveys, where institutions can choose whether or not they want to engage in them, and then 3. some individual projects that we've been doing. And then, finally, I will describe a list of what we want to do in the next few years, in terms of prospective projects.

All of the projects that I'm going to talk about are all published and available through the Vitae website. So I'm only actually going to give you a brief view of the results here, but I hope you will take the opportunity later to look at some of these on our website.

So the first one I want to talk about is the 'What do researchers do?' series of publications (Slide 4). These are all based on what's called the 'Destinations of Leavers in Higher Education' survey run by HESA. It is a requirement that institutions survey all of their graduates six months after graduation. We get quite a lot of information from these individual surveys. We find out their employment status: whether they're employed or unemployed, looking for work; where they are employed in terms of the sectors that they are employed in, their occupations; we look at how much they are paid; whether or not they are doing research in higher education or outside, whether they are teaching. We analyze all of this by discipline and then we do comparisons with undergraduates and Master's so that we can see the difference in terms of doctorate qualifications. We do one or two publications every year in terms of using this data to provide more information to individual researchers and institutions. The '*What do researchers do? First destinations by subject'* is a combination of five years' worth of data that allowed us to drill down to individual subject level information, because one of the things that researchers want to know is, "what can I do in terms of my potential career opportunities?" So we're trying to get as much detailed information as possible and we do this around 30 subjects and six combinations of subjects. Additionally, we support these publications with career stories, individual stories of what researchers have gone on to do in terms of their career paths.

So, as I said, we are able to see doctoral graduates' employment sectors, and consistently about half of doctorate graduates stay in higher education immediately on graduation (Slide 5). The other half go into a range of employment sectors. You will find doctoral graduates employed in all employment sectors. We can also look at their occupations (Slide 6) and, again, we see a wide variety in terms of the different occupations. This is very similar to some statistics we were looking at yesterday in terms of the occupations of Japanese doctoral graduates as well. We can see who are employed in research roles, and these are research roles both inside higher education and outside higher education. We can see the variation by individual subjects in terms of employment opportunities (Slide 7). So we can give hard information to researchers in terms of what are their opportunities of being a researcher, if that's something that they're still intending to do after graduation.

So the second statutory instrument is looking at the same cohort, but three and a half years after the graduation (Slide 8). So this is the follow-up by HESA in terms of their longitudinal career paths. We have over 2,000 responses, about a 45% response rate, which I think is quite a good response rate given that it's four years after they graduated. Respondents are asked about their experience with their research graduate degree program, their experience in finding and securing employment, the value of the doctorate in terms of that employment, how they are employed, their satisfaction with their career, and the impact of their doctorate on employment and on their general quality of life. And we can also analyze this by broad disciplinary groups and by occupational clusters. And I'll come back to explain

what an occupational cluster is in a minute.
So four years after graduation, doctoral graduates have very low levels of unemployment (Slide 9). We can tell what level of contract they're on in terms of whether they're on open contracts or whether they're still on short term contracts, and whether they're working part-time or full-time. We have information in terms of their salary: there is quite a large differentiation (£9000)in the medium salary of doctoral graduates and that of Bachelor graduates. We can see that the value of the doctoral qualification in terms of their employment: 82% of respondents are saying that it was a requirement for their employment or very important. 93% of respondents are satisfied with their career to date. We can see the use of their skills, knowledge and experience in their current employment. We get high percentages in terms of whether these are important or of some importance in their employment, and whether or not they feel they're making a difference and being innovative in their workplace, 94%, whether or not it's helped them progress towards their long-term goals, and whether it's enhanced their social and intellectual capabilities and quality of life.
One of the discussions we've had in the UK is whether or not there are unique doctoral jobs, or if you're not going into a research job or staying in academia, whether you're just entering the normal graduate market and you're no different than if you had finished with your first degree. Through this particular study, we've been able to identify that there are unique doctoral graduate jobs and that there are more of them and they're in more places than we expected (slide 10). We looked at the UK Labour Force Survey and identified where the major concentrations of doctorates are in the labour force, and we analyzed our results from this survey against the Labour Force Survey. From this we were able to identify six clusters of occupations, the first five of which are particularly common to doctoral graduates, in that 86% of doctoral graduates go into those five occupational clusters. And you can see from the other occupations that that's where the majority of the Masters and the undergraduates go in terms of their destinations.
So the five most important occupational clusters are: doing research in higher education, doing research outside of higher education, teaching or lecturing in higher education, other teaching occupations, and then other common doctoral occupations, which are where we find high concentration of doctoral graduates in the labour force. This is primarily in the health sector, in engineering, in manufacturing, in finance, and consultancy. What's interesting is that when we look more deeply into the six cluster, other occupations, we can identify emerging, new occupations for doctoral graduates. These are occupations that either doctoral graduates are creating for themselves because they're being entrepreneurial and they're setting up businesses, or there are emerging new areas that are requiring doctoral capabilities. These particularly common in the creative industries and in the IT sectors: we can see new labor markets emerging here. Somebody asked earlier whether or not there are specific people inside higher education who are employed to support the researchers. Well this is an emerging new occupation for doctoral graduates. We find that many new people who are employed in universities to support doctoral graduates are PhDs themselves. They have the experience of doing a doctoral qualification and they've gone into the professional development of future researchers.
Okay, so a quick look at some of the statistics (Slide 11); the first graph is the importance of the doctorate for their current employment, which ranges from 61% to 97% as a formal requirement or important across all doctoral clusters. How important their skills and competencies are for their current employment is even higher in terms of their responses from 86% - 99%. One of the surprising things that has come out of this data is how many say they're doing research in occupational clusters that are not traditionally recognized as being research occupations (Slide 12). So there are clearly jobs and occupations that are out there in terms of doctoral graduates where they are using directly their

research skills and experience. That's one of the findings that we want to explore further. We don't believe that the current OECD occupational classifications are sufficiently sophisticated enough to identify where doctoral graduates are using their skills and doing research. So there are hidden doctoral-specific occupations out there that we need to reveal.

Another project based on the longitudinal, three and a half year data is exploring the career paths of these researchers over the four years since graduation (Slide 13). Using six-month intervals, we looked at those moving in and out of the labor market, their international mobility, and whether or not they're progressing in terms of their jobs and promotions. We looked at individual career paths to identify the different routes that individual researchers take, their movements in and out of the occupational clusters and examples of the types of roles and careers they take. And as I said, all of this is analyzed by discipline, as well as the total statistics.

So if we look at some of the career paths, 71% of doctoral graduates follow the top ten career paths (Slide 14). So in some ways we've got a tremendous amount of stability in the marketplace for doctoral graduates. But we also identified 379 individual career paths. Half of those are unique to an individual researcher. So there's huge complexity in terms of the career paths that individual researchers can take and I don't think we can underestimate how important it is to be able to tell our researchers that there are unique paths and unique occupations for them in terms of their potential employability. We've also found that 45% of respondents are in the same position as when they got their qualification, so almost half of them are still in the same occupation as they had when they graduated. But we do have good evidence of promotion within that.

We looked more closely at the movements in and out of occupational clusters, and this example is of the movements in and out of what are effectively postdoctoral researchers in higher education (Slide 15). Although we thought the numbers in this particular cluster were fairly consistent and fell gradually, when we looked at how many were moving in and out of this cluster, there's quite an extraordinary movement in and out of postdoctoral research positions, with 40% moving out, but 26% moving in from other cluster. What surprised us was how many are going into research staff, postdoctoral positions in higher education predominantly from having worked in other common doctoral occupations or other research occupations outside higher education. 57% of respondents stayed within the occupational cluster throughout and 62% of these within the same job. So we're seeing much less evidence of promotion and progression with researchers who have postdoctoral research positions, than we do with researchers who work in other occupations.

We've started to build up very useful knowledge in terms of researcher careers (Slide 16). And what we've done with this is to create a labor market information site for doctoral researchers and postdoctoral researchers based on the What do researchers do? data. We've added to it information in terms of different employment sectors, the different employers in those sectors, whether or not they employ doctoral graduates, what level of research and development investment they have. So there's a source of information here in terms of helping inform researchers of potential careers.

I want to talk now about the voluntary surveys (Slide 17). These are surveys that are done on an instrument called BOS, the Bristol Online Survey, which is hosted by the University of Bristol. One of the key advantages of this survey is that institutions can get involved in the survey, but the results of their particular institution are confidential to that institution. The policymakers and all institutions can see the results of the combined UK data, but they cannot see the results of the individual institutions

(except their own). So that gives a very high level of confidence to an individual institution to engage in this survey without risk of their results being compared with another institution's results. No-one can create a table to rank institutions, so you can't be ranked in terms of your own performance as an institution. So this instrument is used very much as an enhancement tool for institutions. All the surveys are based on understanding the experiences and the views of respondents. We've three – one for postgraduate researchers, one for research staff or postdoctorate researchers, and one for principal investigators.

Another advantage to these surveys is that you can set up benchmarking clubs. So if there is a group of institutions that you particularly want to rate yourself against. For example, using Iain's graph earlier the six top UK institutions in terms of funding can set up a benchmarking club and see the combined results of those six institutions and, say, the University of Oxford can compare themselves against the aggregate of the six. An institution can compare themselves against their preferred comparator groupings. It's very flexible and very useful in terms of institutional information.

So firstly the Postgraduate Researcher Experience survey (PRES) (Slide 18). In the last survey, 102 universities voluntarily participated in this and we had over 31,000 responses from current doctoral researchers. The sorts of questions that we're asking about include (Slide 19), their experience in terms of their supervision, the infrastructure, goals and standards for their doctoral programs, professional development. And to follow up on one of the questions asked earlier, this does give you some indication in terms of the participation of postgraduate researchers in skills development. PRES asks respondents about their experience of their doctoral program, relative to their expectations.

In terms of the development of their professional skills, we ask them about the opportunities they have to develop their research skills, their transferable skills, their access to appropriate facilities, what they think of the supervisory-supported guidance, their local research environment, and culture. Overall, in 2011 86% of respondents said that their overall experience of their doctoral programme met or exceeded their expectations (Slide 20).

With these surveys we can also look at progress over time (Slide 21) . PRES is run on a biannual basis, so we can look at progress every two years. And, as you can see, we're making good strides, all but one of the indicators have been improving over the last four years (2007-2011).

The next survey, the Careers in Research Online Survey (CROS) looks at postdoctoral researchers, research staff (Slide 22). The question set covers the principles of the UK Concordat to Support the Career Development of Researchers, so it's one of the important measures in knowing whether we're making a difference in terms of implementing the Concordat. Again, it's run on a two-yearly basis. In 2011, we had over 5,500 responses, which is a 25% response rate. In total, 75 universities have participated in this survey and we publish the aggregate UK results for everybody to see. CROS asks about (Slide 23): Do they think that they experience open and transparent recruitment? Are they recognized and valued by their institution? Do they receive an appropriate induction? Have they been encouraged to consider their own career development? And we also have information about whether or not they are participating in professional development activities.

CROS asks research staff about career aspirations, whether or not they have a career plan, whether or not they feel their institution is committed to equality, diversity and fair treatment and that they are well-informed about their employment conditions and the institutional research strategy. Overall, we get very good results in terms of researchers feeling valued and satisfied with their work-life balance, which is quite surprising considering the work-life balance in universities, as you well know, is not the best. These are results significantly higher than you get in other employment sectors. I think, in part, it's demonstrating how dedicated these people are in terms of doing research: research is their life. They report feeling integrated and stimulated by the research culture and that the university supports

their professional development. When we do cross tabulations on this information, one of the things that comes out quite strongly is that those researchers that have a career plan are more likely to score highly in terms of their engagement and professional development and their work-life balance and level of satisfaction. So I think it identifies the importance of demonstrating that researchers think about, and engage in, their own career development has positive benefits on how they feel about their situation in the institution.

The third survey is the Principal Investigators and Research Leaders survey (PIRLS) (Slide 24). PIRLS asks how did they gain the experience and capabilities to be a research leader and what do they think we need to do to develop future research leaders. So it's what can we learn from principal investigators to help our postdoctoral researchers become research leaders of the future. This is a new survey, which was run for the first time last year. We have 33 universities engaging in it and over 2,500 responses. We asked about their activities: what they do in terms of research leadership? do they feel recognized and valued by their institution? how to prepare future research leaders? the commitment of the institution towards equality and diversity; and their own work-life balance. Many of the questions in this survey are comparable with CROS so we can compare the views and experiences of academics with postdoctoral researchers.

My third category is looking at the ad-hoc surveys or projects that we're doing (Slide 25). . I'm only going to talk about the first two of these. Iain has already mentioned the review of the Roberts recommendations and institutional responses to the Concordat. And he mentioned the review of progress of implementing the Concordat, which is about to be published.

"What do researchers want to do?" surveyed current doctoral researchers in 2010 looking at their career aspirations and engagement (Slide 26). We asked them about their motivations for undertaking a doctorate and their paths into it (Slide 27). How did they get into doctoral study; whether or not they have clear career ideas; what their intentions are in terms of the occupations they're looking at; and the careers advice they are receiving. And then finally how valuable they think their doctoral occupation is for their career intentions. One of the striking things coming out of this is the low level of responses in terms of those researchers that have a definite idea about what they want to do. Only about a third of doctoral researchers were clear about their career intentions, 50% were considering several career alternatives. And around 16% had only a vague idea or no idea at all. They've come in to do a PhD without any clear idea about where the exit is going to lead to. And I think that's one of the challenges. How do you make sure people coming into doctorate programs have some idea about their career potential, and some idea about what they're going to do after they've finished? For those respondents with a definite career in mind, a career in higher education, an academic career, is by far the most important one at 43% of respondents (Slide 28). And one of the clear messages that emerges from the "What do researchers do?" data is it's probably the only statistic that's not going to be achieved, in that not all of these doctoral researchers are going to have a career in higher education. And we need to make sure that they understand that and that they're looking at all of the opportunities open to them.

So the other project I want to talk about is employers' views (Slide 29). We surveyed around 100 employers and we asked them about their expectations in terms of the performance of researchers through a range of different types of generic skills, eg data analysis, problem solving, inter-personal, commercial awareness. What's interesting about this survey is that you can categorize the respondents into different groups, depending on whether or not they actively recruit doctoral graduates (Group1), through to have no interest in doctoral graduates at all (Group 4), and their perceptions of what doctoral graduates bring. You can see there is a correlation between the positive and negative perceptions of what doctoral graduates bring as to whether or not they are actively recruiting, or are aware of, doctoral graduates. We have an important job to do, to move employers from Group 4, into

Group 3, into Group 2, into Group 1 so that we're increasing the number of employers that value and want to have doctoral graduates in their employment. This project surveyed more than just research intensive employers: it included employers across all employment sectors.. And because we have doctoral graduates being employed in all employment sectors, we have to make sure that those employers understand the value of doctorates.

Finally, to give you some ideas of projects we want to do in the next couple of years (Slide 30). If anybody is interested in some of these projects, then I'd be happy to talk about them. We will, very shortly I hope, include international doctoral researchers within our destinations surveys. It is likely to become a statutory responsibility for institutions to survey their international graduates as well as their UK and EU graduates. That will give us a much better picture of doctoral employability because, as Iain said earlier, 42% of our doctoral graduates are international research graduates, so there's a lot of people that we don't know what happens to them after they graduate. We want to do more analysis on the longitudinal, the three years on, data, particularly what is the impact of the recession in terms of career paths. We want to look at the career paths of female researchers compared to male researchers to see if we can see any differentiation. RCUK have an ongoing commitment to do a longitudinal study for 10 years of destinations of doctoral graduates. We want to look at whether we can do a similar study for research staff who are leaving higher education as we have very little information about what happens to postdoctoral researchers when they leave higher education. It is a very important knowledge gap that needs to be filled.

On a slightly different approach, we want to do more work into what is the profile of researcher skills, attributes and expertise at different levels of their career. To do that, we will use the Vitae Researcher Development Framework, which Iain mentioned earlier (Slide 31). This describes the knowledge and behaviors and attributes of successful researchers and it's based around four different quadrants in terms of their knowledge and intellectual abilities to do research, their personal effectiveness, the governance and standards required to be a good researcher, and engagement, impact and influence that are now so important in this society. We have 12 sub-domains within the Researcher Development Framework, and around that, 63 descriptors of the skills and attributes of researchers. Within each of the descriptors, there are between three and five phases of development, It looks complicated, but this has been built up from empirical research interviewing successful researchers. We have validated it now in six countries in Europe, in the US and in the UK, and everybody says, "Yes, that's what a researcher looks like. These are the attributes that they need to be successful." . The Vitae Researcher Development Framework has been developed in the UK into a Professional Development Planner. A researcher can assess their skills and abilities against this framework. We can envisage building up an (anonymous) database of responses from researchers so that we can start identifying a typical profile of, say, a researcher at the start of their doctoral program, at the end of their doctoral program, in their first postdoctoral position, as an independent researcher, as a senior researcher, or even in another employment sector. We want to be able to describe the profession of a researcher and how it evolves over their career.

I'd just like to leave you with a final slide that summarises everything I've talked about, all of which is available on the Vitae website (Slide 32).

司会（MC）：

メトカーフ先生、ありがとうございました。

それでは会場の皆様から質問をお受けしたいと思います。ご質問がある方は恐れ入りますが挙手をお願いいたします。

Thank you very much, Dr Metcalfe.
Now I would like to open the discussion to the floor. Please raise your hand if you have a question.

Q1:
今日は大変多角的な調査のご発表をありがとうございました。
博士課程の卒業生のフォローアップについて 2 点ほどお聞かせください。6 ヵ月後と 3 年後の進路の調査について、これは多分義務づけられているものだと理解いたしましたが、この調査を行う場合には、それぞれ卒業した大学を通して行うのでしょうか。あるいは直接その卒業生に対してコンタクトを取るということになりますでしょうか。
と言いますのは、日本においてもこのような調査、フォローアップの調査を考えておりますが、なかなか個人をずっと追跡するというのはかなり難しい面がございます。ましてや先程、最後の構想でお話のあった 10 年後の調査ということになって参りますと、それぞれの大学を通しての調査というのはかなり難しくなるかと思いますし、あるいは個人のデータをずっと追い続けるということになりますと、それぞれの博士修了者の方に関しても、ある種調査の協力なり、あるいは連絡先を登録するといったことについてのインセンティブがありませんと、どうしてもフォローアップができないと考えますが、そのあたりはどのようにお考えでしょうか。よろしくお願いします。
Thank you very much for sharing your multifaceted studies.
I have two questions about the follow-up surveys for the PhD graduates. I understand that the surveys of what the leavers do after 6 months and 3 years of graduating are statutory required. Do you carry out these surveys through universities or do you contact the leavers directly?
We are considering doing similar surveys in Japan, but it is quite difficult to chase individual leavers to collect answers. Also, it will be even more difficult to do the surveys after 10 years, which you refereed to at the end of your lecture, by asking universities to cooperate, and if that’s done through contacting individual leavers, we will need some good incentives for them to cooperate and register their contact information with us. Could you give us some comments on this?

Metcalfe:
Yes, thank you for that question. It goes to the heart of how do you collectively gather the information that you need in order to make good policy decisions. In the UK the universities are required to follow up six months after graduation and they individually will contact all of their researchers. It’s normally done through the career service or a specialized body. Institutions often employ undergraduate researchers to do Google searches, find the researchers and contact them. The universities have a requirement to get at least a 70% response rate for undergraduate responses, otherwise they could be financially penalized. So there is an incentive for institutions to engage, but also institutions find the individual information for their particular institution very valuable because it’s competitive information. It’s something that they can use on their website to say, “These are the destinations of the researchers who we have trained.” It’s useful for attracting researchers into your particular programs by saying where they are likely to end up. It’s both a combination of carrots and sticks in terms of getting these types of surveys set up. But they are very valuable both on a national level and also for an individual institution.
The three and a half year survey is, at the moment, is being done through our Higher Education Statistics Agency, but may be devolved out to institutions. One of the valuable outcomes of financing and running this survey centrally is that institutions can see the value of the information that’s coming

out of it. The argument that you should follow up on your researchers three and a half years afterwards is probably already won because of the data and related Vitae publications. You get institutional engagement by demonstrating the benefits of it.

Q2-1:
今日は多面的な話をどうもありがとうございました。
たくさんの質問があるのですが、ひとつに絞らせて頂きます。企業はどういうふうな観点でこの人たちを雇うかということです。
具体的に言いますと、スライドのエンプロイヤーズ・エクスペリエンス・オブ・リサーチャーズ・パフォーマンス (Employers' expectation of researchers' performance) という、このスライド、出してもらえますか。このデータにありますグループ 2、グループ 3 の大きな違い、これがドライブ・アンド・モチベーションとプロジェクト・マネージメントという部分にあると思います。具体的に言いますと、グループ 2 でいうと 84 %、それが 59%になる部分と、それから数字が逆転するプロジェクト・マネージメントにおいては 36%が 70%になる、というふうなところです。
これは結局、企業が求めるエンプロイー像という意味ではどのように理解すればよろしいのでしょうか。ドライブ・アンド・モチベーションというのは、企業全体の経営を引っ張って欲しい、他方プロジェクト・マネージメントというのは、ひとつの小さな部署を引っ張って欲しい、というような考えで、このようにグループ 2、グループ 3 が高いレベルの教育を受けた人の雇用を考えると理解してよろしいのかどうか、その辺をちょっと解説して頂ければありがたいと思います。

Thank you very much for your comprehensive lecture.
I have a lot of questions to ask you, but will focus on just one, which is about from what perspective business and industry employ PhD graduates.
Can you show us the slide about "Employers' expectation of researchers'performance"? In this slide, a big difference lies between Group 2 and Group 3, especially in terms of "Drive and Motivation" (Group 2 at 84% and Group 3 at 59%) and "Project management" (Group 2 at 36 % and Group 3 at 70%).
Could you tell us a little bit more about what we can conclude from these results? Does "Drive and Motivation" imply an ability to perform as a part of corporate leaders and "Project management" the ability to perform in smaller scale as a project leader? And can we conclude that the Group 2 employers highly expect "Drive and Motivation" from researchers, whereas the Group 3 employers expect "Project management" skills more?

Metcalfe:
First of all, this survey was only a sample of 109 employers, so it is a small sample and I wouldn't say that it's statistically robust. You can see that not all of the data fit neatly into the board categorization of green, yellow and pink. However, in terms of drive and motivation, this is the individual's drive and motivations - how motivated do respondents believe individual researchers are that they've recruited, or possibly could recruit, because the survey asks about both employers' expectations and their knowledge of the performance of researchers. We're getting a message that the less familiar employers are with doctoral researchers, the less likely they are to rate their skills highly. I wouldn't like to over-interpret that message any more than that. Does that answer your question?

Q2-2:
グループ 3 というのは、博士人材をあまり雇ったことがないのでこのような傾向になっているということでよろしいでしょうか。

Can we say that we have this rating from the Group 3 employers because they have less experiences of recruiting researchers?

Metcalfe:
Yes, Group 1 actively recruits PhDs. They know what they want. They know how to recruit them and they go out and get them. Group 2 have a strong interest in PhDs and they will probably advertise for PhDs or graduates and will recruit. Group 3 have come across PhDs. So they don't actively recruit them, but they are aware that they exist and they do occasionally recruit them because a PhD applies. So they're not proactively going out looking for PhDs. So I think there is a big difference between Group 2 and Group 3 employers.

Q3:
My question is for Dr. Metcalfe. On the same slide, is this a classification of individual companies nature or characteristics, or is it more about the kind of industry, for example, pharmaceutical companies probably tend to employ more PhD researchers; the nature of industry or the nature of individual companies. What is represented by this data? Please.

Metcalfe:
That's a very good question and I should have explained that. What's surprising about this classification is that companies are not where you would expect them to be. So there are pharmaceutical companies that are research and development intensive who are not in Group 1. There are some in Group 2 and there are some in Group 3. One of the messages that came out of this research is that some of the companies that you think should know how to recruit PhDs and should be able to appreciate the skills and abilities that they bring, don't. The classification is based purely responses to questions that we asked and not by company characteristics or sector.

Q4:
ご講演のリサーチャー・サーベイの内容の時に、このデータの示し方として、ランキングにはならない、でも各大学がベンチマーキングをできるようにすると、こういうご説明をされたのですが、その考え方に私は深く賛成なのですが、なぜそういう考え方をお取りになっているのかと、それから具体的にどういう示し方をするとそれが実現するのかを少し教えて頂きたいと思います。

You mentioned in your lecture that, in some surveys, the results of the particular institution are confidential to that institution and nobody can see where you rank, but that you can benchmark yourselves against other institutions. I deeply agree with the way this is done and I am interested to know about how you ended up with this method and how it was achieved?

Metcalfe:
I don't know whether it's peculiar to the UK system, but we are very prone in the UK to producing

ranking tables. Any of you familiar with the Times Higher Education will know that it's very common for universities to be put into tables. It's not always productive because you find that institutions' behaviors change because they work to improve their ranking, rather than to enhance their provision. These three surveys, for postgraduate researchers, research staff and principal investigators, are enhancement surveys. They are to provide institutions with the data that allows them to enhance their provision.

Humphrey:
Can I say something? My name is Robin Humphrey from Newcastle University. We use this data in two ways, one to benchmark ourselves amongst our comparator universities, but we also use it internally because we can look at the data by department and by faculty and we can see differences. And then we can ask people who are underperforming why they're doing it and try and help them to perform better. So I just wanted to say how in digging down into the university sector and within the university, how important this sort of information, both CROS and PRES data, is to institutions.

Metcalfe:
As well as drilling down, I'd like to move upwards as well. We have UK data. I would like to be able to benchmark that against other countries, to see how we're doing, so if Japan's interested in engaging in something like these surveys, then we'd be very interested in looking at comparisons.

司会（MC）:
それでは少々お時間が早いのですが、これにて所内講演会を終了させていただきます。最後に、今回ご講演を頂きましたお二人の先生方に今一度大きな拍手をお願いいたします。

本日はご参加頂きどうもありがとうございました。

We have still got a few minutes left but we would like to end the seminar here. Once again, thank you very much to Dr Cameron and Dr Metcalfe for their lectures.

Thank you for your participation in this seminar.

発 表 ス ラ イ ド

NISTEP Internal Seminar:
Skills training for doctoral candidates and research staff

Dr Iain Cameron,
Head of Research Careers and Diversity,
RCUK Strategy Unit

RCUK Framework for the Future

RCUK, working in partnership, cultivates the essential research and skills to provide the bedrock for the UK to have a productive economy, healthy society and contribute to a sustainable world.

PRODUCTIVE
HEALTHY
SUSTAINABLE

Research Councils UK (RCUK)

Arts & Humanities Research Council

BBSRC bioscience for the future

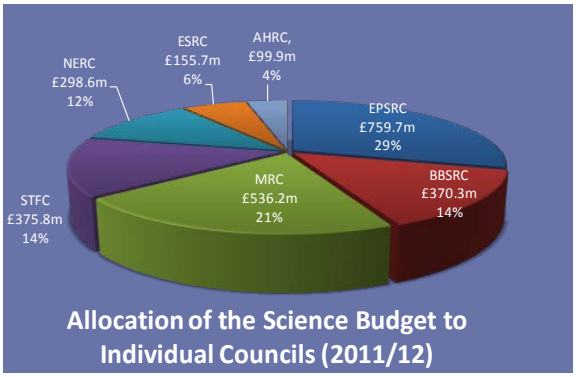
E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

EPSRC Engineering and Physical Sciences Research Council

NATURAL ENVIRONMENT RESEARCH COUNCIL

MRC Medical Research Council

Science & Technology Facilities Council

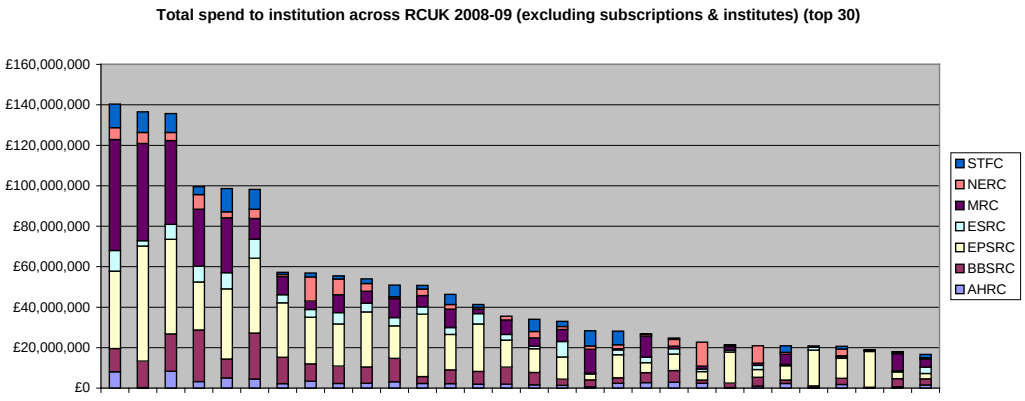


Allocation of the Science Budget to Individual Councils (2011/12)

Total budget:
10/11 £2.55 billion
11/12 £2.60 billion
12/13 £2.57 billion
(Figures 2011/12)

RESEARCH COUNCILS UK

Institutional concentration of funding



RESEARCH COUNCILS UK

UK CONTEXT: Supply of PhDs and Research Staff

Teaching + Research Staff: Total: *93,885; turnover 5000 p.a.*

Research staff: *Total: 42,000; RC-funded 14,000*

Postgraduate researchers: *Total: 50,925 FT; 20,630 PT; 25,385 writing-up: RC -funded ~17,000*

Annual PhD output: *Total: 17,400 – RC: 5000 (70% STEM subjects)*

UK:

Mature students:

Returners to education/research:

Employees

UK Education system

Rest of world ~42% of total EU ~13% of total

RESEARCH COUNCILS UK

Context - RCUK Strategic Vision

"Promote high level skills both for the sustainability of the UK research base and for the benefit of society and the economy"

- Attract the best into challenging and original research projects
- Ensure critical mass in strategic areas
- DTCs and approaches which deliver greater concentration and excellence.
- Emphasise high quality PhD provision in preference to support for taught masters courses

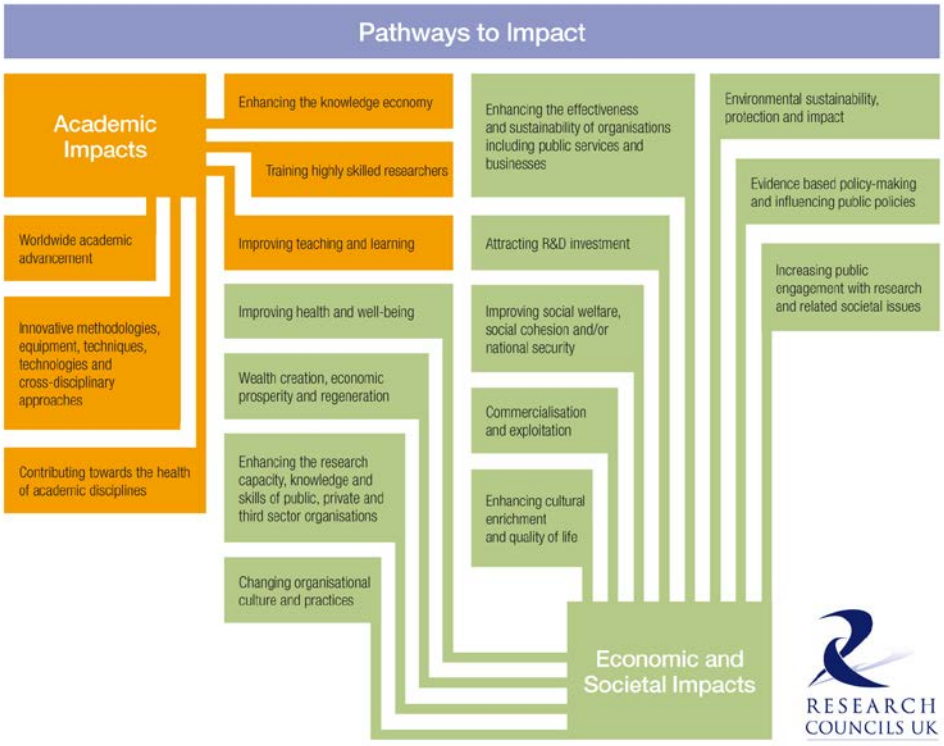
RESEARCH COUNCILS UK

Context: Pathways to Impact

The RCUK vision is to achieve ***excellence with impact*** - the UK should be as renowned for the impact of its research as it is for its excellence.

This means continuing to invest in the best research, people and infrastructure; whilst aiming to enhance the impact of that funding on society.

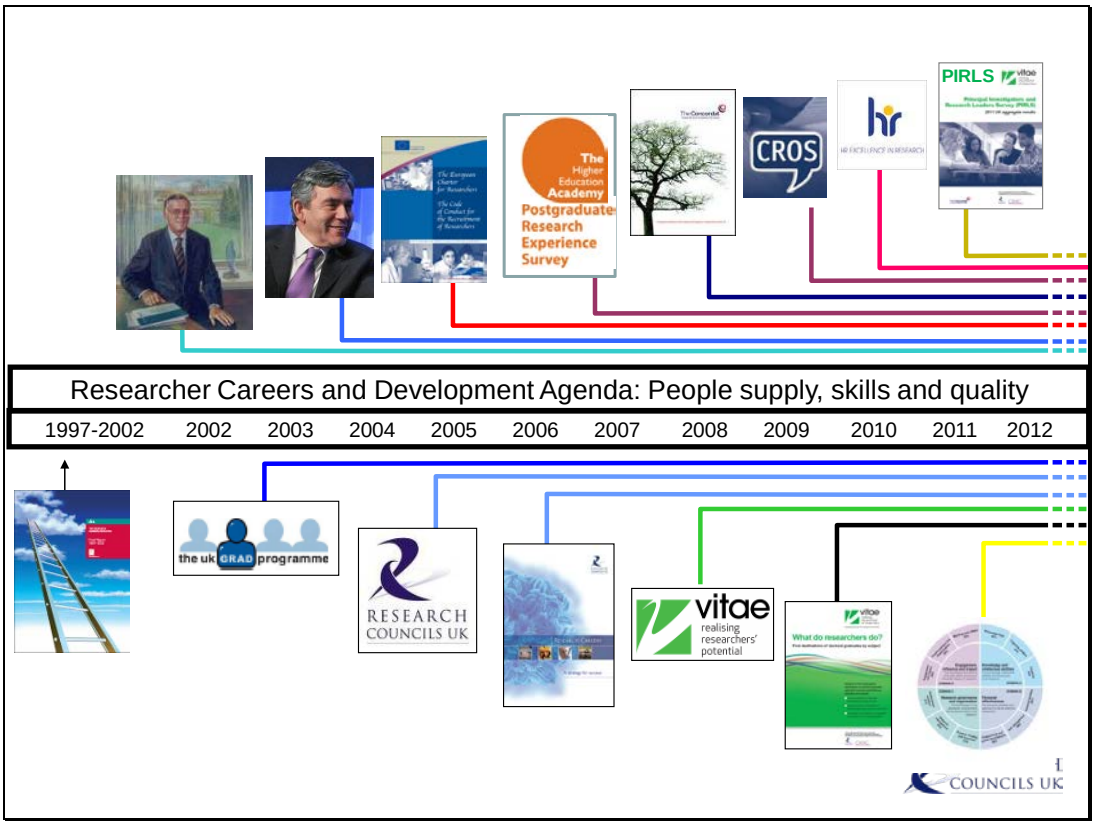
RESEARCH COUNCILS UK



Context: The contribution of people in the REF

- The REF has 3 components: outputs (65%), impact (20%) and environment (15%)
- Support for researcher development is covered in the Environment section e.g. evidence of:
  - how the staffing strategy relates to the unit's research strategy and physical infrastructure
  - career development support at **all** stages in research careers
  - the quality of training and supervision of postgraduate research students
  - how the submitting unit supports equalities and diversity.

RESEARCH COUNCILS UK



A New Era – shifting the emphasis!

- PAST – Central direction limited financial or practical support (1996-2002)
- RECENT – Cash-driven Roberts Agenda (2002-2011)
- PRESENT/FUTURE – Institutional direction - devolved drivers and devolved funding (2011-20??)

RESEARCH COUNCILS UK

SET for Success (2002) - The supply of people with STEM skills

Serious problems in the supply of people with the requisite high quality skills. problems included:

- the financial attractiveness of the PhD,
- deficiencies in transferable skills and
- a lack of preparedness of PhD graduates for careers in business or academia.

Once recruited research staff faced

- a lack of a clear career structures
- uncertain career prospects,
- unsatisfactory training and
- increasingly uncompetitive salaries.

RESEARCH COUNCILS UK

The contribution from the Roberts Report since 2002

- Enhanced skills and career development training
- Minimum standards for Research Degree Programmes → Joint Skills Statement
- Code of Practice for Research Degree Programmes
- Enhanced salaries and stipends
- A new Concordat to Support the Career Development of Researchers
- UKGRAD and Vitae Programme (since 2008)
- New career routes - Academic Fellowships

Context - Changes to doctoral support since 2004?

- Doctoral training structures and expectations:
  - New/expanded approaches including centres, cohorts, critical-mass and partnerships
  - Greater expectations from funders – employability (including HE), leadership, internships and placements
  - Strategic choice of subjects
- Longer more flexible more structured study period
  - typically 3.5 to 4-years
  - Masters/Doctoral integration - MRes+PhD, ESRC 1+3, 2+2 etc.
  - Structured work – taught, assessable...
- Maturity of Researcher Development agenda
  - Transferable skills embedded into programmes
  - Funding embedded in PGR fees
  - Researcher Development Statement/Framework replaces JSS

The Concordat

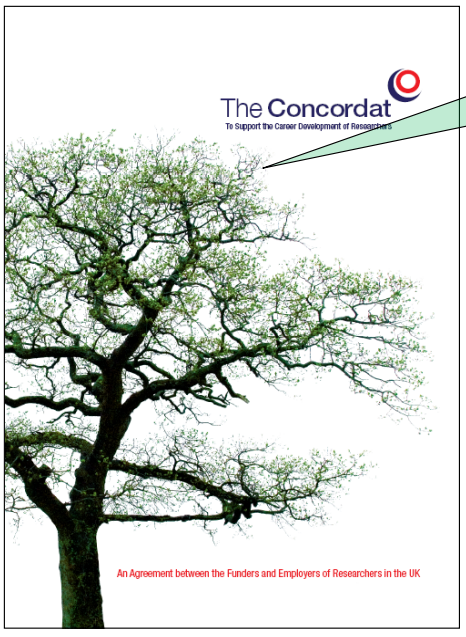
to Support the Career Development of Researchers

http://www.researchconcordat.ac.uk/

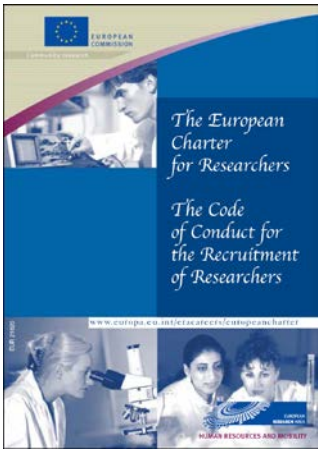
The 2008 Concordat and the European Charter and Code

The Concordat

to Support the Career Development of Researchers



"In endorsing the principles, we, the signatories, hereby adopt the principles of the European Charter for Researchers And Code of Practice for the Recruitment of Researchers"



http://www.researchconcordat.ac.uk/

- Launched 2008
- Review 2011-12

The Concordat to Support the Career Development of Researchers

7 principles

A. Recruitment and Selection
B. Recognition and Value
C. Support and Career Development
D. Researchers Responsibilities
E. Diversity and Equality
F. Implementation and Review

- A set of principles for the future support and management of research careers and an explanation of how it may best be embedded into institutional practice;
- A clear statement of the signatories' collective expectations for the support and management of researchers.
- A section emphasising the responsibility of researchers to take control of their career and to further it through informed decisions.

http://www.researchconcordat.ac.uk/

C. Support and Career Development

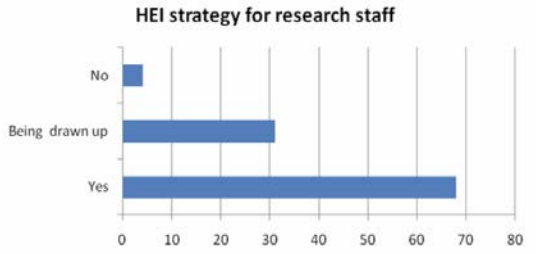
The Concordat to Support the Career Development of Researchers

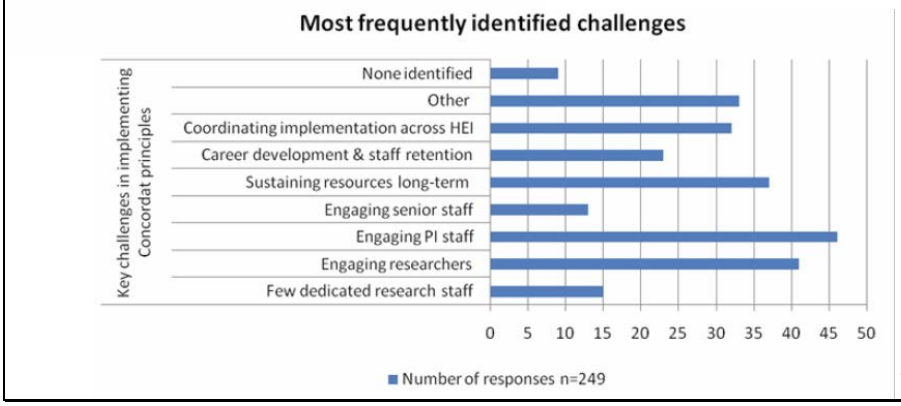
Principle 3

Researchers are equipped and supported to be adaptable and flexible in an increasingly diverse, mobile, global research environment.

http://www.researchconcordat.ac.uk/

Concordat implementation - HEI survey findings





RESEARCH COUNCILS UK

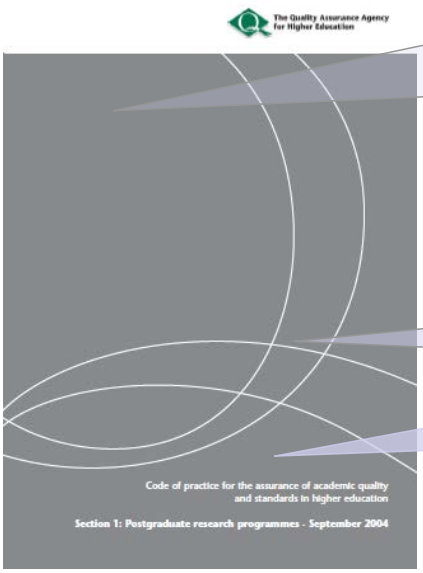
HR Excellence in Research

- 50 UK organisations have gained the badge
- ~30 from the rest of Europe

- Important now for EU to increase the overall number

RESEARCH COUNCILS UK

QAA: Code of Practice for Research Degree Programmes



Code of practice for the assurance of academic quality and standards in higher education

Section 1: Postgraduate research programmes - September 2004

Incorporates the Research Councils Joint Skills Statement

New version currently under development for 2012 – to include Researcher Development Statement

http://www.qaa.ac.uk/academicinfrastructure/codeOfPractice/

RESEARCH COUNCILS UK

'QAA Code of Practice' changes to 'UK Quality Code for Higher Education'

Proposed 'Indicators of sound practice' for the Development of research and other skills are:

Indicator 14:

- **Providers provide research students with appropriate opportunities for personal and professional development. Each student's development needs are identified and agreed jointly by the student and appropriate academic staff, initially during the student's induction period; they are regularly reviewed during the research degree and amended as appropriate.**

Indicator 15:

- **Providers provide opportunities for research students to maintain a record of personal progress, which includes reference to the development of research and other skills.**

RESEARCH COUNCILS UK

Researcher Development Framework (RDF) - 2011

vitae realising the potential of researchers
Incorporating the UK GRAD Programme and UKHERD

- **Major new approach** to researcher development
  - evolution of the **Joint Skills Statement** for PGRs and research staff
  - describes **knowledge, behaviours and attributes** of researchers at different stages of development
  - providing a **language for communicating** researcher qualities
- **Researcher Development Statement endorsed by key stakeholders**
- RDF **website**
  - resources, FAQs
  - researcher profiles
  - JSS mapping
- **Professional development tool**
- **RDF lenses**

www.vitae.ac.uk/rdf

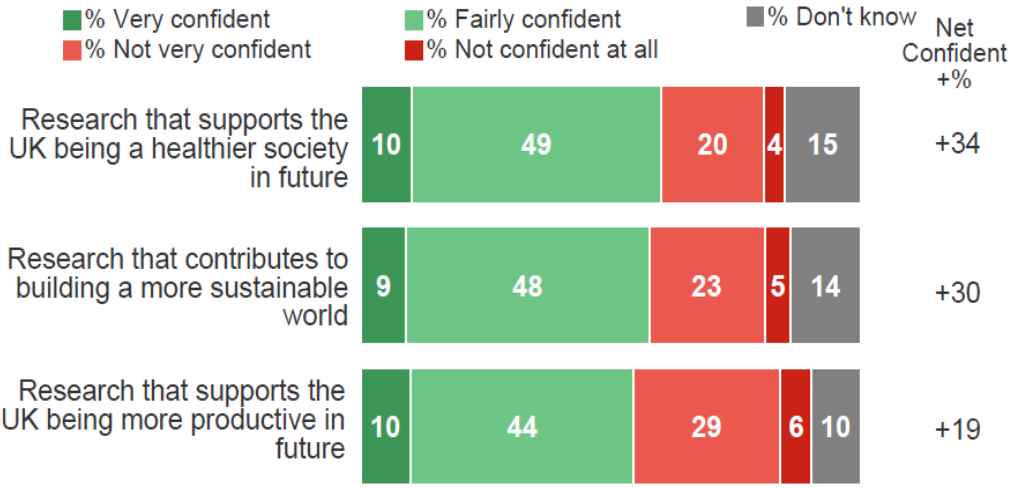
RCUK User satisfaction survey

- RCUK commissioned Ipsos MORI to undertake its second User Satisfaction Survey in 2010. The findings show that the Research Councils have made significant progress since 2007, when the last survey was conducted.
- The evidence is based on the views of 902 direct users of the Research Councils and wider beneficiaries who took part in an online survey between 2nd and 26th July 2010.
- In the 2010 survey, a majority of users say that the Research Council they have most interaction with is effective at meeting their needs to some or a large/great extent in a number of different areas.

RESEARCH COUNCILS UK

Confidence in postgraduate skills

Q And how confident, if at all, are you that the UK has the right postgraduate skills to carry out effective research in each of the following areas?



Base: All respondents (902), fieldwork dates: 2nd - 26th July 2010

Ipsos MORI

Independent Review of Implementing Researcher Development (2011)

Hodge Review - Recommendation 6

"Research organisations, employers and other relevant stakeholders such as Vitae, should develop systematic and frequent interactions such that the focus on employment needs is the driver for future developments of transferable skills training. Mechanisms for this and the blocks that prevent it happening must be understood and improved."

RESEARCH COUNCILS UK

RCUK Response to Recommendation 6

- effective interaction between the HE sector and employers is essential to maximise the value from its investments in research and people.
- agree on more systematic interaction with employers to inform the development of transferable skills training
- Vitae provides many routes for sharing of practice and RCUK sees these as key in exploring the identification and involvement of relevant employers.
- Agree that new systems and structures should not be created unless there is reasonable expectation that they will add value.

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Independent Review – Distance Travelled*

For postgraduates

- in 2009 70-80% of research organisations were making extensive provision for transferable skills compared to 10% in 2004

For Research staff

- In 2009 30-35% of research organisations were making extensive provision for career development and skills compared to <10% in 2004

**K. Haynes Analysis of Reports (2004+2009)*

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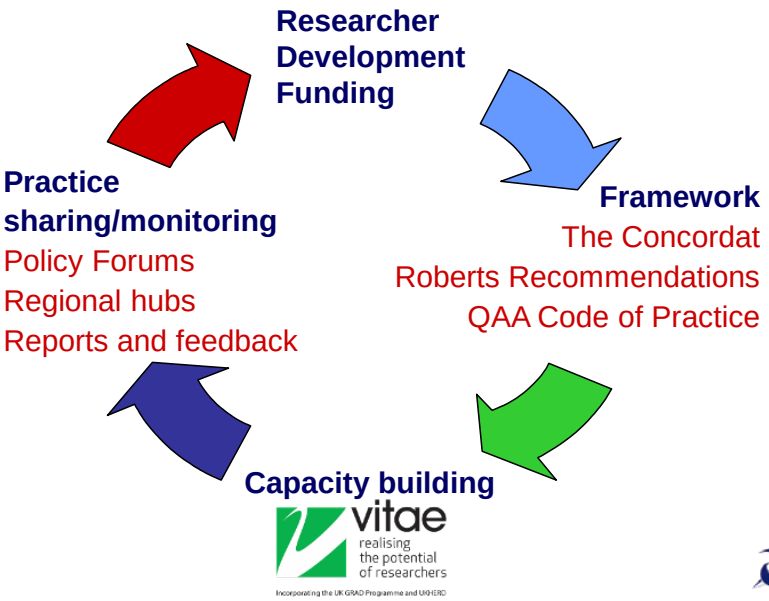
A virtuous circle for researcher training



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Future challenges

- Ensure engagement with stakeholders:
  - Research Staff
  - Employers both HE and non-HE
  - Users of research outputs (knowledge and researchers)
- Maintaining the momentum of career development in a economic downturn
- Making the transition from ring-fenced funds to embedding funding and activity into ‘normal’ practice
- Monitoring progress to sustainability and measuring impact
- Demonstrating value to employers and the economy

RESEARCH COUNCILS UK

Thank you for your attention.

vitae
realising
the potential
of researchers

NISTEP Internal Seminar
22 March 2012

Dr Janet Metcalfe
janet.metcalfe@vitae.ac.uk

www.vitae.ac.uk

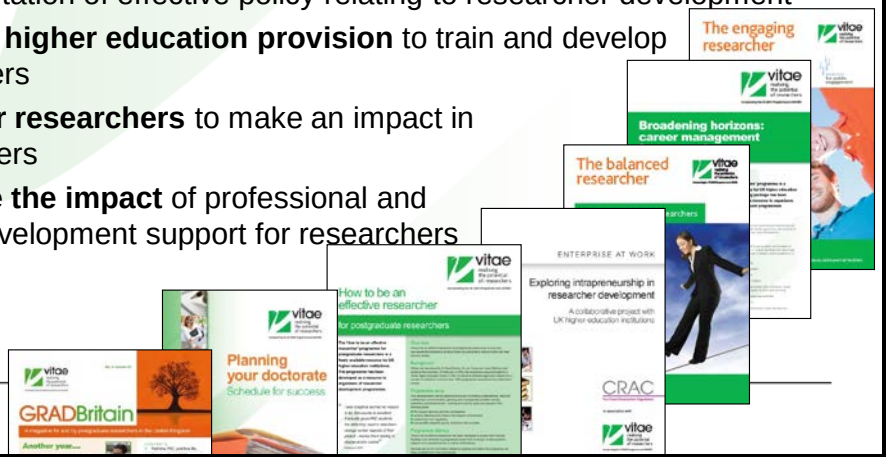
Vitae is supported by Research Councils UK (RCUK),
managed by CRAC: The Career Development Organisation
and delivered in partnership with regional Hub host universities

Vitae vision and aims

vitae
realising
the potential
of researchers

"For the UK to be world-class in supporting the personal, professional and career development of researchers"

- **Build human capital** by influencing the development and implementation of effective policy relating to researcher development
- **Enhance higher education provision** to train and develop researchers
- **Empower researchers** to make an impact in their careers
- **Evidence the impact** of professional and career development support for researchers



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Researcher surveys

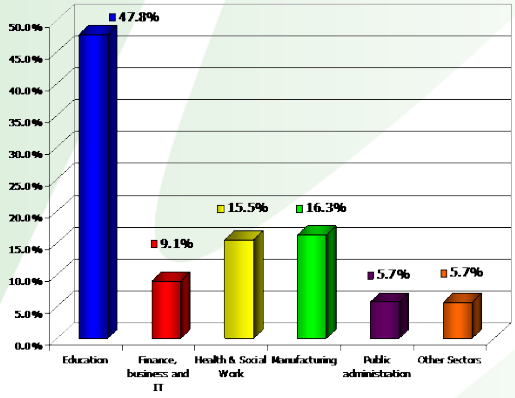
- Statutory surveys
  - Destinations of leavers from higher education (DLHE), 6 mon
  - Longitudinal follow-up after three years
- Voluntary surveys
  - Postgraduate Researcher Experience Survey (PRES)
  - Careers in Research Online Survey (CROS)
  - Principal Investigators and Research Leaders Survey (PIRLS)
- Projects
  - What do researchers want to do
  - Employers' views
  - Review of Roberts recommendations
  - Institutional responses to the Concordat
  - Review of progress in implementing the Concordat

What do researchers do? First destinations by subject

- 2009 Vitae publication
- DLHE responses for 2003 - 2007 doctoral graduates
- Cohort 12.5k - 14.5k
- 65-70% response rate
- 24,780 respondents
- 30 subjects and 6 'others'

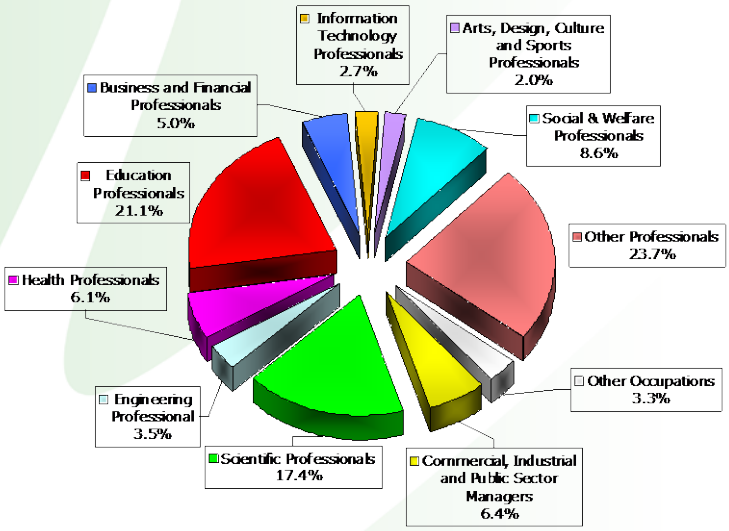
www.vitae.ac.uk/wdrd

What do researchers do? First destinations by subject



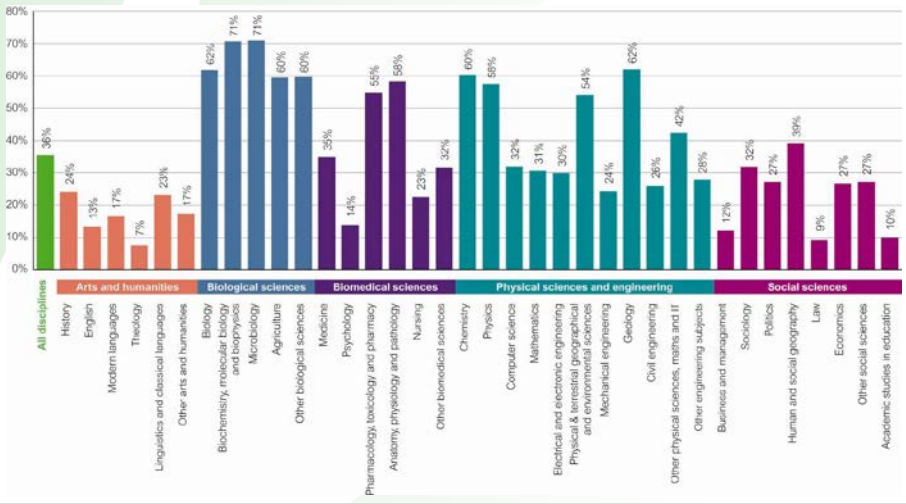
- Employment status
- Employed in:
  - Education sector
  - research occupations
  - research in higher education
  - teaching in higher education
- Occupations
- Analysis by discipline
- Comparison with undergraduates and masters

Doctoral destinations by occupation



Employed in research roles

35 overall: varies from 7% (theology) to 71% (some biological subjects)



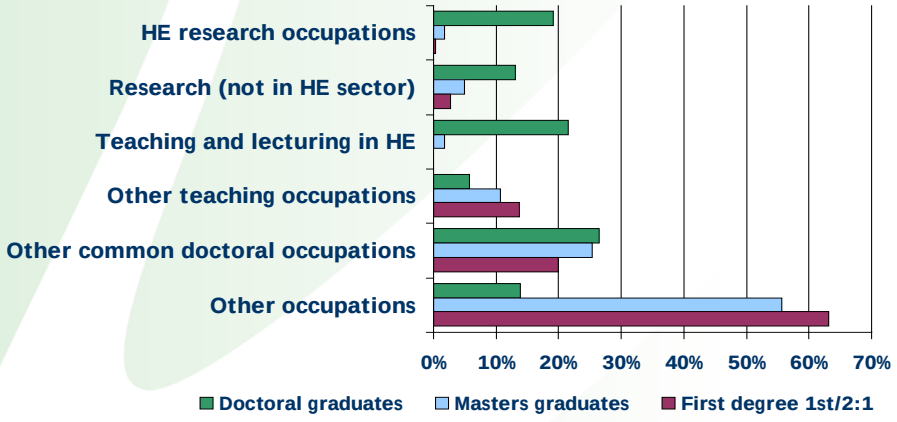
WDRD? Destinations and impact three years on

- Based on the 2008 L DHLE data ~3-4 years after doctoral graduation (2004/05)
- >2000 responses; 45% response rate
- Experience of research degree programme
- Finding and securing employment
- Value of the doctorate
- Employment situation
- Satisfaction with career to date
- Impact of the doctorate on employment and life
- Analysis by discipline and occupational cluster

WDRD? Destinations and impact three years on

- Employability
  - Employment circumstances (2% unemployed)
  - Status (contract/mode of work)
  - Median annual salary (£34k D; £25k B)
  - Value of the doctorate (82% requirement or impo
  - Satisfaction with career to date (93%)
- Impact of the doctorate
  - Use of knowledge, skills and experience (research skills 82%; generic skills (91%)
  - Make a difference in the workplace / innovation (94%)
  - Progress towards long term career aspirations (87%)
  - Enhance social and intellectual capabilities, quality of life (89%)
  - Unique doctoral occupations

WDRD? Destinations and impact three years on

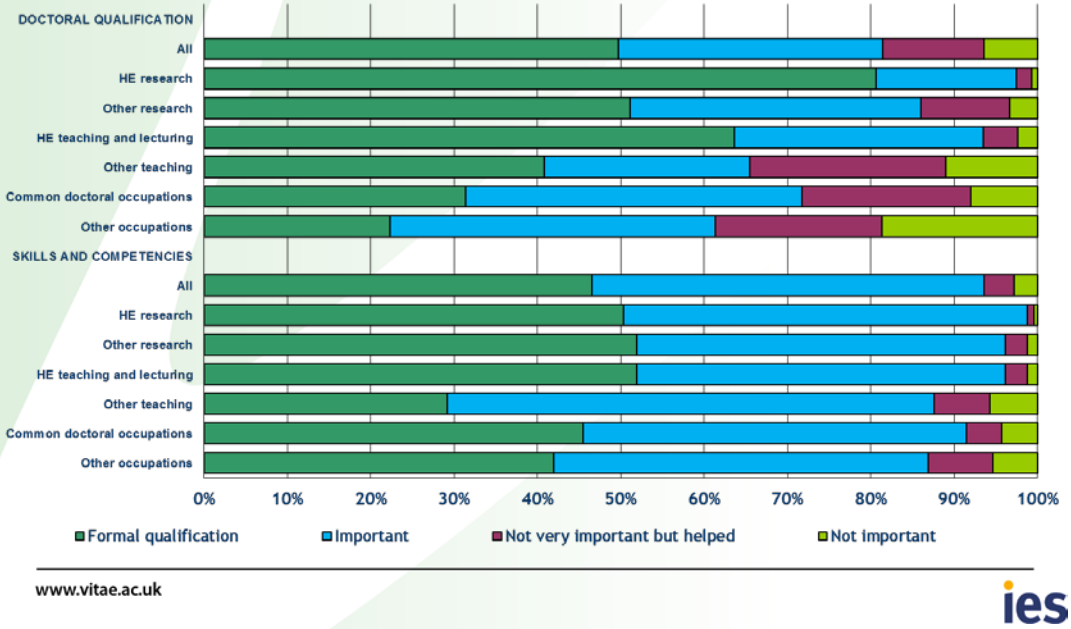


'My doctorate changed my life. It opened doors, and it also opened my mind. I take on challenges now, in my life and my career, because I have faith in my own abilities.'

Cora Beth Knowles (Latin literature), Open University

www.vitae.ac.uk

Importance of doctorate, skills and competencies for current employment



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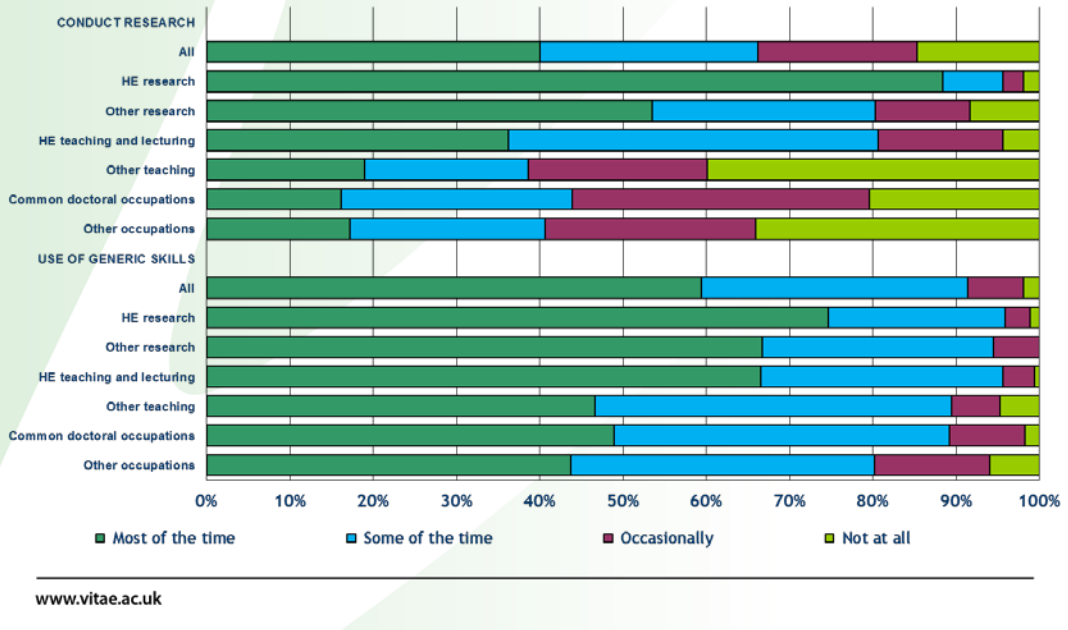
Conducting research and use of generic skills



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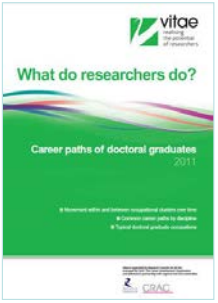
WDRD? Doctoral career paths

- Based on L DLHE employment activity over four years
- Recorded main 'activities' at six month intervals by cluster
  - time in and out labour market
  - in UK and overseas
  - promotions
- Explored mobility
  - individual career paths
  - movements in and out of clusters
  - examples of roles and careers
- Analysis by discipline



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Key career pathways

Table 2.2 Common career paths for all respondents[5]

Rank	Career pathway	Respondents	%
1	Other common doctoral occupations throughout	340	16
2	Teaching and lecturing in HE throughout	315	15
3	HE research throughout	240	12
4	Other occupations throughout	175	9
5	Research (not in HE sector) throughout	170	8
6	Other teaching occupations throughout	75	4
7	Taking time out of the labour market	45	2
8	HE research then teaching and lecturing in HE	45	2
9	HE research then Research (not in HE sector)	30	2
10	Other occupations then other common doctoral occupations	30	1
	Total (in 10 most common pathways)	1460	71
	Total (all doctoral graduate respondents)	2075	100

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Doctoral graduate career pathways

- Mobility of researchers in higher education

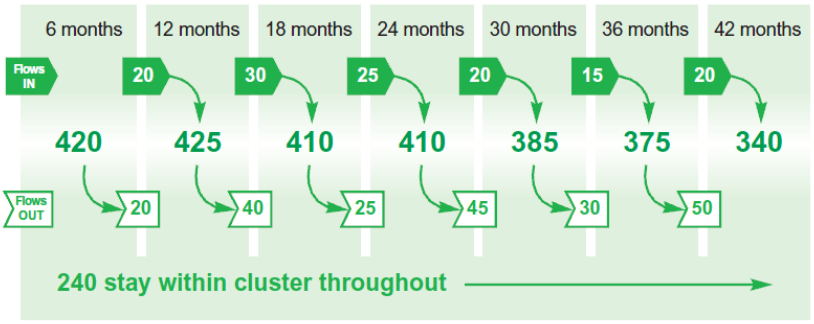

Figure 2.3 HE research occupations: movements in and out of cluster

- 19% fall in numbers over three years
- 40% move out; 26% move in
- 57% stayed in cluster throughout (62% in same job)

Labour market information

Researcher surveys

- Voluntary surveys
  - Postgraduate Researcher Experience Survey (PRES)
  - Careers in Research Online Survey (CROS)
  - Principal Investigators and Research Leaders Survey (PIRLS)

Postgraduate Researcher Experience Survey (PRES)

- Views and experiences of doctoral researchers
- Confidential parallel online surveys run by HEIs biennially, coordinated by Higher Education Academy
- >31, 000 responses; 32% response rate
- 102 institutions participated in 2011
- Benchmarking clubs
- UK aggregate results published

Postgraduate Researchers Experience Survey (PRES)

- Supervision
- Infrastructure
- Goals and standards
- Professional development and career
- Teaching opportunities
- Confidence about completing on time
- Skills development
- Intellectual climate
- Thesis examination
- Roles and responsibilities
- Personal factors
- Importance
- Experience versus expectations

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Postgraduate Researchers Experience Survey (PRES) 2011

Met or exceeded expectations:

- Opportunities to develop a range of research skills 88%
- Opportunities to develop a range of transferable skills 87%
- Access to appropriate facilities 83%
- Supervisory support and guidance 83%
- Research environment 80%

The overall experience of my research programme 86%

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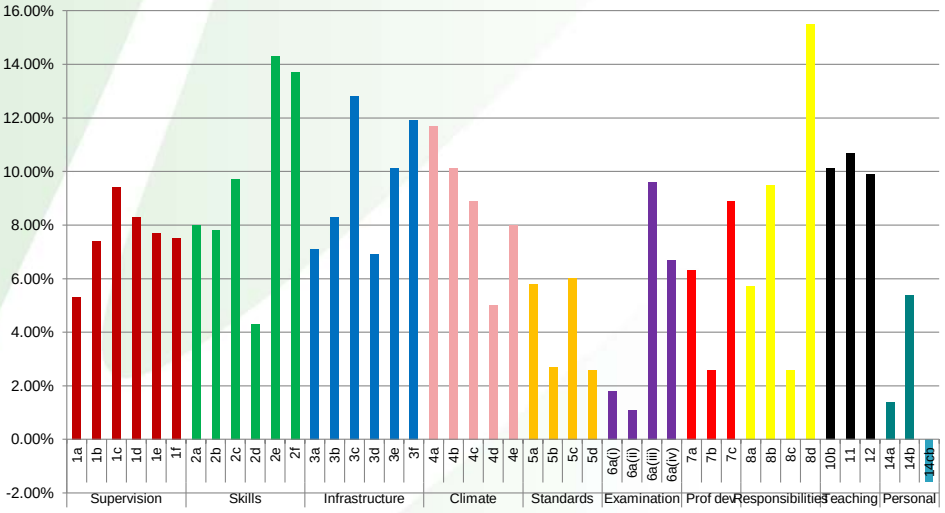
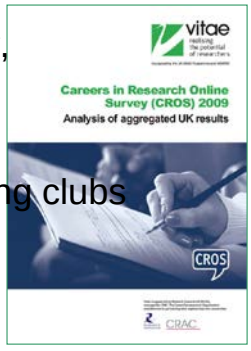
PRES changes 2007-2011



Careers in Research Online Survey (CROS)

- Question set covers the principles of the Concordat to Support the Career Development of Researchers
- Views and experiences of research staff employed in higher education
- Parallel online surveys run by HEIs biennially, coordinated by Vitae
- >5500 responses; 25% response rate
- 75 institutions have participated, benchmarking clubs
- UK aggregate results published



Careers in research online survey (CROS)

- Open and transparent recruitment
- Recognised and valued; receive induction
- Encouraged to consider their career development
- Participation in career development activities
- Career aspirations; have a career plan
- Institutional commitment to diversity and equality and fair treatment
- Informed about current employment conditions and research strategy

Overall, most researchers feel:
- valued and satisfied with work-life balance
- integrated in their department and stimulated by research culture
- that their HEI supports training and career development

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Principal Investigators and Research Leaders Survey (PIRLS)

- Views and experiences of principal investigators
  - how they gained the experience and capabilities that have made them research leaders
  - how to develop the research leaders of tomorrow
- Parallel online surveys run by HEIs biennally and coordinated by Vitae, benchmarking clubs
- > 2500 responses from 33 institutions
- Approximately 19% response rate
- UK aggregate results published
  - Principal investigators' and research leaders' activities
  - Recognition and value
  - Preparing future research leaders
  - Equality and diversity
  - Work-life balance

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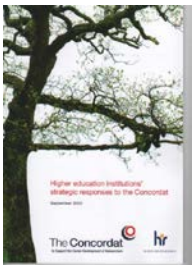
Researcher surveys

- Projects
  - What do researchers want to do, 2012
  - Employers' views, 2009
  - Review of Roberts recommendations
  - Institutional strategic responses to the Concordat, 2009
  - Review of progress in implementing the Concordat, 2012



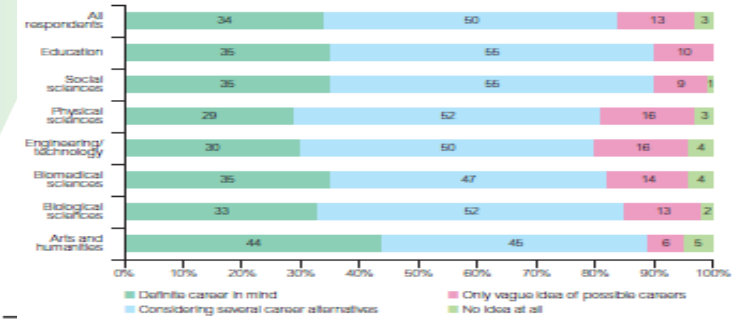
Career motivations
What do researchers want to do?

- Vitae project
- 2010 online survey of current doctoral researc
- Over 4500 responses from 130 institutions
- Analysis by year of study and discipline

- Part of a larger study into the career intentions of science, engineering and maths graduates for Department of Business Innovation and Skills

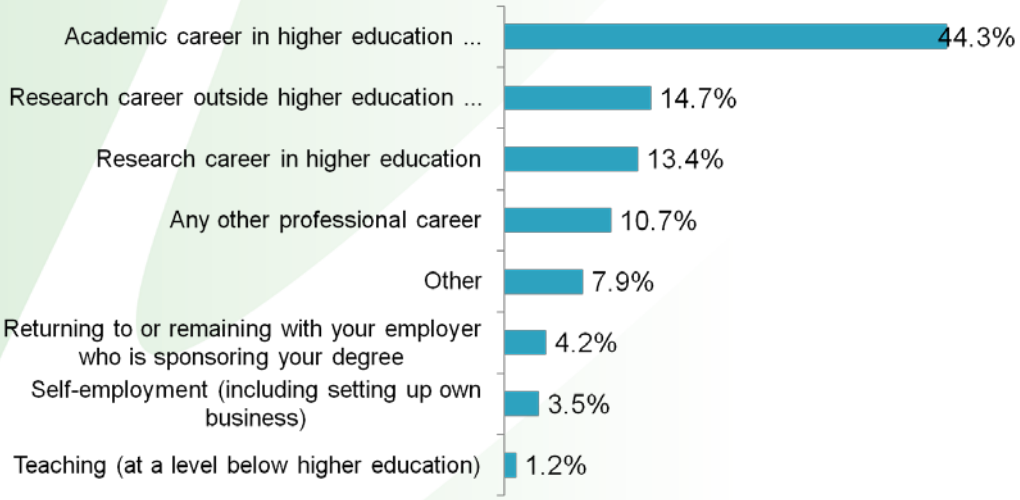
Career motivations
What do researchers want to do?

- Motivation for undertaking doctorate
- Paths into doctoral education
- Strength of career ideas
- Occupational intentions and careers advice
- Value of doctoral qualification for employment



- Definite idea
- Considering several options
- Only vague idea
- No idea

Anticipated career
For those will definite career intentions



Employers' expectation of researchers' performance (high and very high)

	Group 1	Group 2	Group 3	Group 4
Data analysis	100%	100%	91%	91%
Problem Solving	100%	88%	89%	83%
Drive and Motivation	100%	84%	59%	74%
Project Management	83%	36%	70%	39%
Interpersonal Skills	67%	56%	39%	26%
Leadership	67%	28%	24%	17%
Commercial awareness	50%	20%	28%	22%
Overall	**81%**	**59%**	**57%**	**50%**

Employer categories

Group 1: actively target doctorates

Group 2: strong interest

Group 3: some interest, occasionally recruit

Group 4: no interest

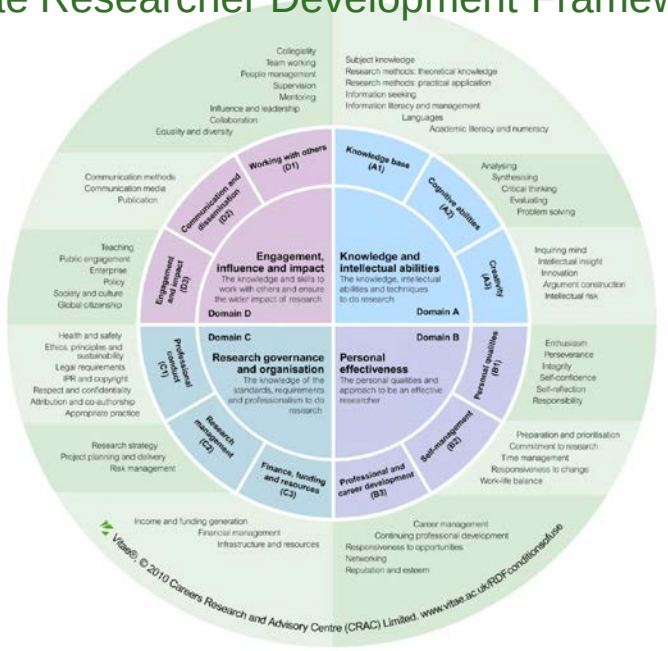
Recruiting researchers, Vitae 2009,

104 employers

Additional surveys and projects

- What do international researchers do?
  - include international researchers in DLHE
- Analysis of 2011 L DLHE
  - impact of the recession
  - career paths of female researchers
- RCUK ten-year longitudinal study
- Research staff career paths
- Profile of researchers' skills, attributes and expertise

Vitae Researcher Development Framework



- Framework of the knowledge, behaviour and attributes of successful researchers
- Enables self-assessment of strengths and areas for further development
- Common language for researchers capabilities

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Useful links

- Vitae: www.vitae.ac.uk
- What do researchers do? www.vitae.ac.uk/wdrd
- Labour market information www.vitae.ac.uk/lmi
- Impact and evaluation www.vitae.ac.uk/impact
- Researcher Development Framework www.vitae.ac.uk/rdf
- Careers in Research Online Survey www.vitae.ac.uk/cros
- Principal Investigators and Research Leaders Survey www.vitae.ac.uk/pirls
- Vitae employers www.vitae.ac.uk/employers
- Concordat www.researchconcordat.ac.uk

www.vitae.ac.uk