

## **Achieving Research Impact (ARI)**

**Dr Tim Hughes, Professor in Applied Marketing. E-mail: [tim.hughes@uwe.ac.uk](mailto:tim.hughes@uwe.ac.uk)**

### **Executive Summary**

1. The research on which this report is based is made up of semi-structured interviews with individuals involved in the research process, who are in a position to reflect upon some of the practical issues around achieving impact. The report contains more questions than answers. This reflects an evolving situation as individuals and institutions grapple with the changes required to achieve wider impact.
2. At a high level the wider impact agenda is very clear. In the UK, the requirement for impact case studies for the Research Excellence Framework (REF) 2014 has put a focus on the need to demonstrate the societal and economic changes that have come about as a result of research. Research councils and funders in the UK and in Europe are making collaboration with non-academic organisations a pre-requisite for receiving funding in many cases.
3. The route to achieving impact is more direct and obvious in some fields than others. However, fundamentally there are three routes: 1) professional practice and/or working with organisations/industry [including creating spin-outs]; 2) influencing government policy; 3) working directly with the general public. Whichever combination of routes is most appropriate, a lot of time and effort will usually be required to create meaningful impact. In addition because of the difficulties in attribution, the complexity and the timescales involved, measurement of the impact achieved can take a significant amount of resource.
4. There appears to be some way to go in reforming the research culture. The criticism of research culture, as being rather inward looking, is not confined to academic researchers, but is also made of many commercial researchers working on European projects. This raises a number of training and career management issues that need further consideration:
  - Career management: At what stage should early career researchers engage with knowledge exchange?
  - Training: what skills are required? How far should impact skills be built into PhD training?
  - Placements and internships: How to provide opportunities for early career researchers to get experience of working in user communities?
  - Recruitment: What are the appropriate requirements for people in research roles?
  - Established researchers: Training requirements, motivation and promotional criteria.
5. Innovation requires co-creation of knowledge between universities and partner organisations rather than simply providing access to university knowledge. A strategic approach is required because collaboration is about building relationships and trust, which takes time, resources and commitment. It is important that this collaboration is translated into practice rather than just being a mechanism to secure funding. Setting a strategy is just the start and the challenge is in effectively implementing the strategy within large and complex institutions. All of the universities involved in this research had departments that managed the boundary between research and the outside world, but making the interface

work effectively poses questions in terms of what structures work best. The need for a strategic approach raises a number of issues for universities and other research institutions:

- What needs to be done to raise awareness of the wider impact agenda within the institutions' user communities?
- How can complex research institutions, such as universities, most effectively communicate their strengths and capabilities to appropriate potential users?
- Which existing connections between the university and outside organisations should be developed into, wider, deeper more long term relationships?
- What organisational structures work best in supporting a wider impact strategy?

6. While many of the interviewees considered the drive for more open access to research publications to be a good thing, there was also recognition that effective research dissemination is about more than just making journal articles available. While developments in social media have created new opportunities for interaction with user communities, our research suggests that most researchers are probably a long way off from making the most of the new media environment. This is not surprising considering the time and effort that may be required to identify users and to build appropriate networks. In addition not everyone has the know-how and skills to present their findings in the most effective multi-media formats. Taking steps to successfully achieve impact requires the researcher to have a good idea of who is the potential audience for the research and what is important to that audience. There are a number of tactical issues around dissemination:
  - How far have most researchers identified their potential user communities?
  - How can researchers access and use the most appropriate networks to disseminate their findings to user communities?
  - How can research results be presented effectively using the opportunities provided by new media?

**This research was partially funded by Insight Publishers, Bristol**

## Contents

### 1. Introduction

### 2. Perspectives on research impact

#### *2.1 Definitions*

#### *2.2 Measuring impact*

#### *2.3 Impact in different fields*

### 3. Who is responsible for achieving impact?

#### *3.1 The role of policy and funders*

#### *3.2 The role of researchers and institutions*

### 4. Research culture and wider impact

#### *4.1 Research culture*

#### *4.2 Signs of change*

### 5. Identification of research users and engagement with them

### 6. Collaboration

### 7. Research dissemination and open access

#### *7.1 Open access*

#### *7.2 Dissemination*

### 8. Conclusions

#### *8.1 Developing impactful research practice*

#### *8.2 Strategic support for impactful research*

#### *8.3 Tactical support for impactful research*

### References

### Appendix: Profile of interviewees

## 1. Introduction

The emphasis on considering the impact of university research stems from a growing call for universities to demonstrate the value from the money that is allocated to them for research. The influential Lambert Review of Business University Collaboration (2003) made recommendations to achieve more effective collaboration between the science and business communities. In *A Vision for UK Research*, published in March 2010, the Council for Science and Technology stressed the need to fund research that adds to societal value in a context of the significant and increasing sums of money allocated to research - £1.3bn in 1997 to £3.9bn in 2010/11 [p.12]. Research Councils UK defines impact as both academic and economic/societal and applicants for Research Council funding are now required to outline the ways in which they will attempt to achieve economic/societal impact from their research (Research Councils UK website). Furthermore, emphasis has been put on impact through the 2014 REF (Research Excellence Framework) including a 20% score for impact case studies (REF 2014 website). In Europe, the 2020 Strategy includes impact as one of the key dimensions in the allocation of research funding and in the USA the STAR METRICS initiative is designed to monitor the impact of science investment (LERU, May 2012).

The research on which this report is based was conducted during the summer of 2013. It is made up of semi-structured interviews with individuals involved in the research process, who are in a position to reflect upon some of the practical issues around achieving impact. Half of the interviewees are academics, chosen because their role involves either an overview of research or an overview of engagement or in some cases both. The non-academics were chosen because of their involvement in research as researchers themselves, as users of research, or because their role gives them a valid perspective, for example working in a research funding organisation. An anonymised list of the interviewees and their roles is provided in the appendix.

The interviews were transcribed and analysed using NVIVO software. This enables the researcher to identify common themes in the interviews and bring together what each interviewee is saying in relation to each theme. These themes are then used as a way of structuring the presentation of the findings. As far as possible, the interviewees own words are used to illustrate the points made in the report.

As with all qualitative research the findings should not be seen as generalizable or in any way representative of the entire research community. The research is exploratory and is designed to look at some of the issues around achieving research impact in some depth. It is hoped that this report will provide some 'food for thought' and contribute to the on-going debate around how to enhance the value gained from society's investment in research.

## **2. Perspectives on research impact**

### *2.1 Definitions*

The academics interviewed tended to define impact very much in line with the HEFCE definition. This is not surprising considering many of them had been involved in creating and selecting impact case studies for the upcoming REF 2014 in the UK.

“It is really very broad, so it’s not just economic you know it is sociological, cultural, environmental, really any change which can be in some way attributed to something that we’ve done.” ACADEMIC 11

“It means the benefit, broadly defined, of research done here within the context, plans and targets of people outside our sector.” ACADEMIC 2

“What we need to demonstrate from our research is how it has subsequently provided tangible and verifiable positive impact, economically, financially or socially.” ACADEMIC 10

The breadth of the definition recognises both traditional scholarly impact and a whole range of possible economic and social consequences:

“So for me research impact is whole spectrum of things starting from the very pure knowledge itself ..... right the way through to the scale to where you know you’ve got these rather hard edged: ‘did a company manage to sell more product in the last five years as a result of that piece of research done ten years ago’. But for me it’s all those things.” ACADEMIC 6

Furthermore, the very breadth leaves plenty of room for differences in interpretation, particularly between different communities. For a commercial researcher NON-ACADEMIC 6 “I would talk about impact when we have an asset which has gone from us to an industrial user”. In contrast, NON-ACADEMIC 8 considers impact to be a later stage in the process “The impact is what happens after that piece of software, hardware, IT equipment has been created. How does that change things?”.

NON-ACADEMIC 7 points out that impact may not always be positive. Impact may be negative or the consequences of research may be unintended. ACADEMIC 7 is of the opinion that the HEFCE REF 2014 model, is “over simplistic” and “linear” whereas the reality is more complex and interactive with impact working both ways.

The multiple ways in which research can impact on the wider world becomes very apparent in discussing ways in which impact can be assessed across different research fields.

### *2.2 Measuring impact*

The challenge of trying to get common measures to prove impact has taken place is highlighted by the interviewees. NON-ACADEMIC 9 and NON-ACADEMIC 6 are both very sceptical about the metrics used for impact in European research:

“In my field I mean just every day I get, I’m not joking, at least ten invitation to go to yet another dissemination workshop or conference or what have you and it’s just, people see this as a very convenient vehicle to say, that well, this is how we create impact. We have done, you know, x number of workshops, we’ve published x number of papers, we have talked to x number of research

teams in other parts of Europe or even beyond Europe, so we have ticked all the boxes. I think those metrics are not very useful in this area.” NON-ACADEMIC 9

“The European projects are evaluated on 3 main points which are the innovation, the implementation and the impact....but usually the, well it’s only my point of view, but from within impact it’s a kind of ‘we will present in conferences, we will make some publications and that’s it’. I think for the researchers it has impact between themselves, it can help them to travel to, yes that’s right, but the kind of transfer of impact to the economy, I’m a bit sceptical.” NON-ACADEMIC 6

Traditional academic impact measurement, around publications and citations, is relatively straight forward compared with recording the range of economic and societal impacts:

“This is the problem we’re going to come across with developing a system to support recording impact..... you know publications is either a journal paper, it’s a conference contribution, it’s a book chapter, a book and so on, there’s a categorisation, there’s an established system for saying what sort of thing it is. We don’t have this system for impact yet and it’s a lot harder to pin down.”

ACADEMIC 9

There are situations in which measuring impact is straight forward. ACADEMIC 2 provides an example of a Knowledge Transfer Partnership (KTP) that involved making recommendations on changing the type of plastic used for making a particular piece of medical equipment. This resulted in fewer rejects and subsequent benefits to the company’s bottom line. However, most research projects are far more complex than this and where large numbers of parties are involved attribution can be difficult:

“Of course it’s difficult to achieve it, it’s not solely related to our research, its attributable to action from many other people and our research is the evidence perhaps that they can use to first make decisions and then to monitor the effect, but our research alone wouldn’t change things. It depends on policy makers being able to change things, advise and level of investment and so on.” NON-ACADEMIC 1

Increasing collaboration on projects leads to more complexity:

“I think the rise of inter disciplinary work and with much wider collaborations between universities within the UK and overseas makes it harder to really pin down which funding body, which discipline, which academic was the cause and effect in this change that brought about a better vacuum cleaner or whatever. The systems thing is quite important there because what they want to do, of course, is not just trying to agree on improved technology as a deeper category for impact, but also want to have unique identifiers and persistent identifiers, as they call them, for the projects and for people so that you can start to check it over time. You can say well, you know, there were actually about 150 people involved in this, by the time it got to market.” ACADEMIC 5

Impact will often take place over extended timescales:

“This policy guidance and then something happened a year later, three years later, five years later how do you trace the causality through.” ACADEMIC 2

“A philosopher thinking through some fundamentals that maybe in twenty-five years’ time permeates a collective consciousness that then makes someone at that time, who’s in the legal research area, say something that in twenty-five years after that, starts to change the statutes of a country ok, I would argue it’s no less impact, it’s just less measurable.” ACADEMIC 6

As a result of the difficulties in attribution, complexity and timescales involved, measurement can take an enormous amount of time and resources. For example ACADEMIC 8 describes a project to analyse the exploitation of Intellectual Property (IP) from the books of the university:

“So doing that sort of analysis on what was the benefit to the company, have they ever exploited it? Have their sales gone up? How has it improved their productivity? How is it in a new product? Is it just the ingredients? Is it a brand new diagnostic? What are the benefits to the market in those different sectors? It’s a huge job just for one project. I think it’s about three million pound project, and it’s going to split into maybe fifteen or sixteen smaller projects. If you are going to have a look at the impact on each one of those it’s a huge job to collate all that information.” ACADEMIC 8

There is a particular problem in attributing responsibility for policy changes in that many people may be involved and individuals may not be motivated to give the credit where it is due:

“The only measure we have is the number of people who want us to give them advice, but any decision on such an important issue as energy policy is going to be the result of consulting with an incredibly wide range of people and its very unlikely that any one person is going to be decisive..... the problem with the Research Excellence Framework is that you have to document how it is that you can be sure that they did what they did because of what you said and most civil servants will never do that, because they don’t publish articles with their references.” ACADEMIC 1

“It’s particularly a problem with policy impact, you know, getting people to say yes doctor so and so informed me and I changed government policy as a result. It’s just really unlikely to happen so we struggle in some areas.” ACADEMIC 9

So the challenges are considerable in finding ways to evaluate impact across different subject areas that are not over simplistic and at the same time are seen as fair and equitable.

### *2.3 Impact in different fields*

Achieving impact should be possible in all fields, according to ACADEMIC 6:

“I believe that every academic in every discipline can have quite a meaningful societal impact and actually it’s very, very difficult to say that for example an engineering academic would have the capability of having more impact than a philosophy one.” ACADEMIC 6

“Philosophy might influence the way people think about the world and understand the world, make sense of the world, engineering might influence the way a particular manufacturer makes widgets of some sort or something to do with clever plastics or whatever. But the harder end scientific subjects can also influence the way people think about the world or influence public opinion around measles and MRI vaccines and so forth.” ACADEMIC 2

However, many of the interviewees recognised that the route to impact is more direct and obvious in some fields than others. For example engineering research naturally lends itself to identifiable outcomes:

“If a university is doing research which directly impacts the engine design, then that’s useful, if the government which fund that and sponsor it, then that is also seen as useful because the money is going to be used. You know not all research will come to a positive outcome, but that’s the whole point of research, but the fact is that by the time they’ve finished they will say yes you can use this material or no you can’t, so you know whichever the research goes, its positives, it’s a positive outcome, so that’s useful.” NON-ACADEMIC 4

The academic interviewees were able to provide examples of wider impact from across the full spectrum of subjects. Such as art historians teaming up with a museum to enrich public understanding; experts on the Middle East advising the Foreign Office on how to get interventions right; social scientists working with engineers to influence end users’ behaviour in take up of environmentally friendly technologies; chemists involved in spin-out companies, social scientists working with policy-makers and charities. These ‘success’ stories were probably top of mind because of the requirement to provide impact case studies for every subject area under the UK’s REF 2014. This has raised awareness of impact and how to make it more explicit:

“I think what is very good and what I’ve seen many universities do, not just our own, is the gathering and dissemination of good practice, case studies just to explain different projects to people. So for me the fact that we’ve got to do these case studies in a rather dry format and in a rigorous way for the current REF measurement is quite good. Because at least case studies are things that you can explain to people and then universities start to have a bit more of a human face.” ACADEMIC 6

“The interesting thing about this first round of the REF and the impact case studies of course is, it’s drawing scenarios stories from a period of time when the core resource wasn’t incentivised to produce that.” ACADEMIC 10

“The REF has sharpened the focus on impact certainly, especially if you write an impact template that’s explaining our approach to impact over the last five years when we weren’t thinking about in those terms five years ago.” ACADEMIC 9

At the same time the REF only requires one impact case study for every ten academics entered and the impact element only accounts for 20% of the overall assessment. Perhaps the most significant implication of the REF is the way it is influencing thinking on designing and conducting research going forward:

“I think we’ve begun to think of impact being less the thing that happens at the end and something that’s kind of designed into the research from the beginning, at a much wider scope beyond academics, to communities, to wider public engagements, to policy and planning in a more obvious and strategic way.” ACADEMIC 4

This in turn may potentially have implications for the type of research that is supported by universities:

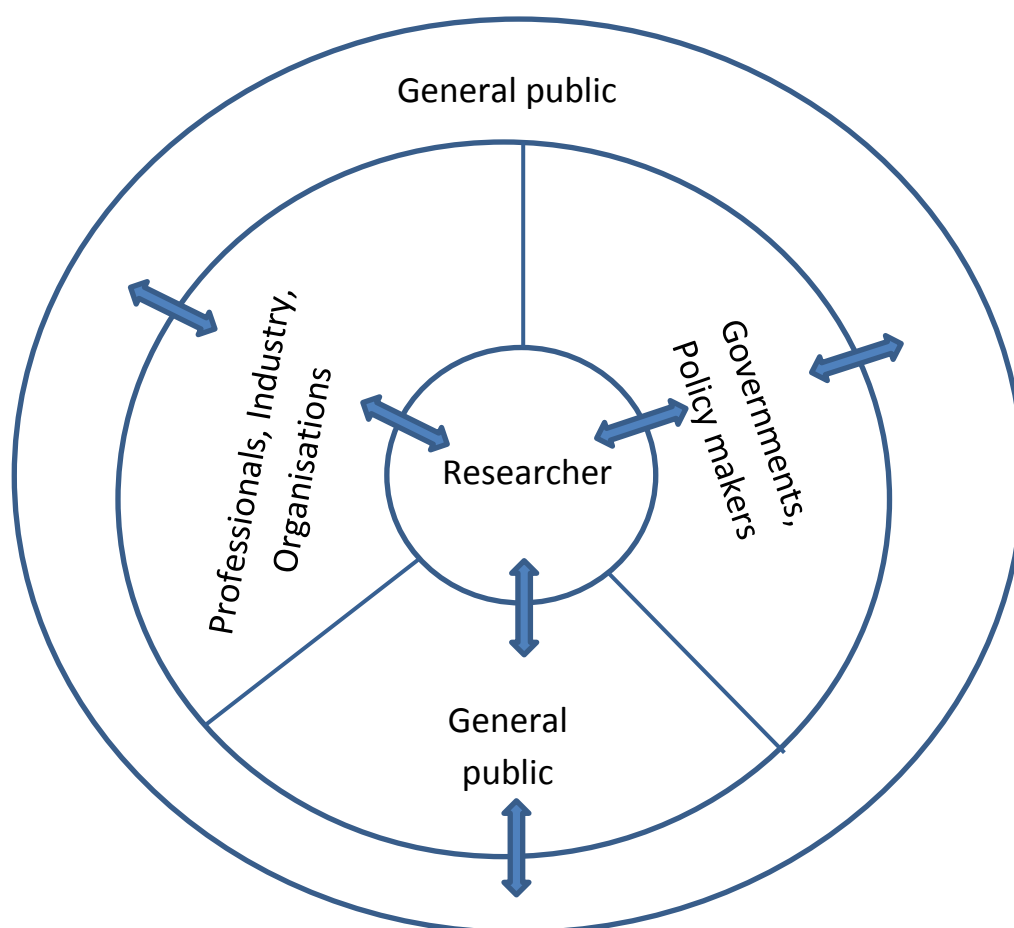


“So I do worry about that and I think in times of constraint we’re having to make decisions about research leave and sabbaticals and that kind of thing and it is quite challenging for universities.”  
ACADEMIC 4

ACADEMIC 11 provides a good summary of the fundamental routes open to researchers from all disciplines, of working either directly with the public or with organisations and professionals or influencing policy through working with government:

“I mean in terms of our overall impact framework, if you like, then it’s the same for all areas or disciplines but you might imagine that some areas might do like say more public engagement than other areas and some areas might do more working directly with industry than others and some might do more working with government.” ACADEMIC 11

Figure 1 Routes to impact



Source: Derived by the author from research interviews

In some circumstances the researcher will be most effective in creating impact through working through professional practice and/or working with organisations/industry (including creating spin-outs). Indirectly this will lead to wider public impact overtime. Another indirect route to creating

public impact is through influencing government policy. The third route involves working directly with the general public. Whichever combination of routes is most appropriate a lot time and effort will usually be required to create impact. This raises a number of questions about the responsibility for achieving impact and the support that is required.

### 3. Who is responsible for achieving impact?

#### 3.1 The role of policy and funders

At the highest level, government and European policy drives the impact agenda, through the funding bodies. The interviewees are very aware of the move by funding bodies to tie research funding into projects that can demonstrate economic and/or societal impact:

“The Treasury is behind research funding councils, it’s behind the Higher Education Funding Council and QR money. So they’ve pushed the research councils, they’ve pushed HEFCE, HEFCE is very concerned to be able to demonstrate that QR money is generating research impact, they’ve just initiated another study to investigate, Price Waterhouse Coopers and somebody else have wanted to come and talk to us, about examples of where QR funding has impacted.” ACADEMIC 2

“If you don’t work with X, if you don’t collaborate you’re not going to get research funding and so our academics who haven’t switched on to that and realised that will struggle, not just ours, across the sector. If they haven’t realised you need to collaborate there’s got to be an end result for you, if you’re interested in your research then you’re not going to get funding for it .....so that’s a very, very clear at the top level, the big strategic projects they’re saying we’ll give you this if industry say they want it.” ACADEMIC 8

“I think the changes have already been made or there certainly is a strong encouragement from research councils to consider impact as part of the development research proposals, you kind of sign up at the beginning to say that you’ll be thinking about this and doing things a bit differently to inform users.” ACADEMIC 9

“The innovation centre with our networks, our entrepreneurship programme is involved in every single one of those bids.....which is great so the funders, it’s interesting isn’t it, the funders are forcing this because when you apply for a fund its against their criteria” ACADEMIC 10

NON-ACADEMIC 7 suggests that the UK has been at the forefront of implementing the impact policy through research funding, but that Europe is increasingly going down this route. Other interviewees also confirm the increasing focus on impact in European bids.

“At the (name of research council) we’ve been doing it for a long time, the UK’s kind of a forerunner for impact, aside from the US, in the world really. European or people on the continent, other research funding agencies don’t push it half as much as we do, but the European commission in terms of their calls have picked up on the fact that actually this is tax payers’ money and having something to show for it is really important. So impact is one of the assessment criteria for all FP7 bids and carries its own weighting like scientific excellence and like project management so it’s given equal weighting. Each of the calls within the work programme say ‘expected impact’, it’s kind of giving people a push to really think about these sort of things.” NON-ACADEMIC 7

“European Commission or European Union funding research because the big vehicle there is the framework funding and the framework programmes and Horizon 2020, which is the next one to come along, they are very much focussed on impact on either industry, industry sectors, society knotty problems, big problems like climate change and they focus in, the agendas they draw up and they’re quite tightly specified.” ACADEMIC 2

“The structural funds that we get, so for example European Regional Development Fund, they come with a plethora of impact achievable and in fact things like number of businesses assisted, number of businesses created, number of jobs created, number of jobs safeguarded and these numbers are actually used in anger. I mean not just the European funders but the Treasury will claw money back, TSB will claw money back, if you don’t meet those targets.” ACADEMIC 6

While the funders are requiring impact to be built into research proposals, it is early days and the big question remains as to how far these policies will be translated into actual impact in reality. NON-ACADEMIC 6 and NON-ACADEMIC 9 are both very critical about the achievement of real impact from European projects, but this is based on looking backwards. It remains to be seen if this situation will change going forward. Other interviewees raise relevant points about wider policy and funding for innovation needed to optimise impact:

“One aspect inherent in UK policies that have been not conducive to impact is in everything pushes us towards competition and that’s not good for impact because it’s very important that universities are able to sort of pass the ball, more like a rugby playing team here, look saying you know get it out to wing because that’s where this particular chemistry is done, done in Liverpool or Cambridge or whatever, but we need to be able to do that. The other thing, of course, it also requires the partner organisations to put resources in place, if you like the hand shake coming from the other direction and this is one of the sad things about UK manufacturing industry that their financial tax and investments, shareholder framework is not at all conducive to investing in long term research and it’s been a complete blight, so increasingly the people I used to know at the beginning of my career, in companies like BP and ICI, they would have people who could work with universities and ensure the intellectual support for the transmission of ideas in both directions. These people hardly exist now.” ACADEMIC 7

“I can work with the university, eventually they’ll come up with an output of a system which looks commercially exploitable, and you think that’s great. But I’ve got to take it to the next step, I’ve got to put some development in it. So I’ll need half a million pounds or three quarters of a million pounds to actually get it to the point where you think that is actually a product, it’s a proper business case, here’s the first two proto types, here’s all the manufacturing issues resolved and this looks as if it can fly and we’ve even been out and got the first orders from it. Unless you can fund that bit, because that’s what doesn’t get funded at the moment, unless you can fund that bit, you might as well not bother because the idea won’t go anywhere.” NON-ACADEMIC 4

### *3.2 The role of researchers and institutions*

One of the questions that created most discussion with the interviewees concerned allocation of responsibility for achieving impact on the ground. This does not seem to have been debated in any great depth, but is something that needs to be considered at all levels:

“That’s an interesting question isn’t, um phew yeah but more to the point who’s going to be responsible if we don’t do it..... I’ve really not thought about that before because we strive for it all the time. I think you know as an institution we feel responsible as an university but there’s nobody who has in their job title, if you like, obviously it wouldn’t be in their job title, but you know what I mean..... I don’t think it’s so much that the agenda is to make sure there’s an impact. I think it’s to make sure we do well in the REF.” ACADEMIC 3

The individual researcher is the expert in their own research:

“In the end I think researchers; individual researchers are responsible for generating impact because they generate the key knowledge in the first place.” ACADEMIC 6

But researchers work within established cultures and institutional contexts:

“I think the researcher is responsible for making sure that they are engaged in research questions that are relevant and interesting, they can make progress within their own context. So they are also responsible for ensuring that they have pathways, potential pathways to impact and when those pathways activate doing what they can to keep them alive. But there is responsibility on their institutions as well to make sure that activity is probably supported, resourced and rewarded.”

ACADEMIC 7

“I think the ultimate responsibility has to come down to the researcher or the team of researchers, but the university or the institution, research institution, has certainly got a role to play as does the research funder, who has funded the research enabling that impact and supporting the research team in delivering impact in the way that they want to and in a way that they see their project achieving impact so, its everyone, its everyone’s problem.” NON-ACADEMIC 8

The issue of how far researchers should be responsible for impact is not just confined to the university sector, but is also raised by NON-ACADEMIC 9 talking about the culture of researchers in general:

“If you look at FP7 ICT research the funding on the FP7, there’s been several billions, I think it is a substantial amount of funds and that the real market impact in terms of as I said, delivering solutions services, real services on the market has been very, very scarce and one reason is that researchers move from project to project. So they finish a project ok take part in a review of some sort, whatever the results might be and then they move onto the next one. So the impact creation bit is typically overlooked and I think researchers, typically they don’t really understand the business issues nor do they typically have any interest in business issues.” NON-ACADEMIC 9

ACADEMIC 11 provides a useful perspective on the role of the researcher and the university in making it easy for third parties to create impact from the university’s research:

“Most of the people who have been writing the impact case studies seem to think that its only impact if they’ve done it and that is not my view, so it would be reasonable I think for an academic member of staff to be involved in the early stages of impact, the translation of their research or whatever because they’re possibly the best person suited for that, but unless they’re actually going to be the person who runs the spin out company then they’re not going to be involved in that impact. But if another company takes out or licences our research or whatever, and you know has economic impact then that’s still impact from our research and that’s great. So in terms of the responsibility I would say that it isn’t the universities responsibility, it isn’t the member of staff responsibility, they may wish to be involved and that’s fine and great but if they don’t, that’s also fine and great. But I think it is our responsibility to try and make it as easy as possible, or as attractive as possible, or appropriate as possible whatever, in order for third parties to be able to take our research and do things with it. So it’s the port for the translation if you like, rather than the

translation itself and of course that varies across areas but yeah it's the enabling of the pathways, the making of the road rather than driving the vehicle." ACADEMIC 11

Similarly, ACADEMIC 8 sees the role of the university as that of bringing academics together with practice:

"I say well think of it more of a glorified dating agency, so we have a range of academics within the university..... it's really broad in terms of what we can offer and we have experts in the field who are our professors, who are interested in working with the external worlds on commercial or even sometimes non-commercial programmes and often they are based around their research, so they're keen to look for a partner and then we are also out in the different industrial networks and focussing on different sectors and we're speaking with companies and organisations who are interested in us solving a problem. We're in a university which is solutions rich and problems poor and in business it's the other way round. So what we try and do is identify academics who are keen to work with external organisations and have a specific capability and expertise and then we're out in the networks and identifying companies who are interested in working with universities and who are have a specific problem or want to tackle something that we might be able to help out on and we bring those two together and we essentially structure a conversation to enable the two parties to figure out whether there is something there or not." ACADEMIC 8

One aspect is that universities have a role to play in communicating their willingness to engage with business and the community:

"But I think universities want to have an impact that's very broad and I think we want our impact to be understood in terms of our impact on people, the local enterprise partnerships and the whole regional stuff, I think is very important as well that's probably a bit underdeveloped at the moment." ACADEMIC 5

"Communicating as broadly as we can, the consequences of discoveries, however is important..... So there your partners ..... might be the media who sort of package and reformulate this for public non-technical consumption." ACADEMIC 7

For some universities a focus on impact is being built into their strategy:

"So (name of university) has research with impact as one of its four headlines in its new strategy 2020 and I think that's kind of setting out the stall that that's how we would see the focus and therefore we have a responsibility to support that in terms of helping our academics focus on it." ACADEMIC 2

"We've made a strategic decision, we've got a new research strategy and we've decided to invest in that area. I think before we had certain people who were supporting what we called enterprise, in inverted commas, and then we had other people who were helping knowledge exchange for example and I think what we're trying to do is see this in a more holistic way now and much more closely linked to the research that academics are doing rather than being oh enterprise is something that happens over there." ACADEMIC 4

"I think with all of these things, a clear message centrally from the top is really important and I think we have done that or tried to do that with our strategy. We launched a sort of an overarching

discussion of 2020 strategy last year, in some areas they're still filling in the detail of that and I think impact will be quite prominent. But it's one thing to make a statement at high level, you then need to work out how it translates to actual genuine encouragement and support on the ground. You can't just assume that will happen." ACADEMIC 9

However, as suggested in the quote above, setting a strategy is just the start and the challenge is in effectively implementing it within large and complex institutions. All of the universities involved in this research had departments that managed the boundary between research and the outside world, but making the interface work effectively poses questions in terms of what structures work best. For example, the need for close collaboration between pre-award support departments and post award (knowledge exploitation) departments. In particular, research and enterprise departments need to find the most effective and appropriate ways to support academics in achieving impact across different faculties and departments.

However, at a more fundamental level ACADEMIC 11 assesses that a culture change will be required for quite a proportion of academic staff. The next section considers the issue of existing research culture and how far it is changing in view of the wider impact agenda.

## 4. Research culture and wider impact

### 4.1 Research culture

There have always been individual researchers who have put a lot of effort into working outside of the academic community and interacting with research users to maximise the relevance and impact of their research. The interesting question, at this point of time is how deeply the wider impact agenda has seeped into the research culture:

“I think the idea of going beyond the article, the research article or the book chapter that’s quite a new approach to them in terms of impact. Academics are very comfortable with having an impact in research, the old fashioned traditional research, but moving beyond that I think it’s something that’s going to be a bit more challenging. I think back to when I was a normal academic in the department. It wasn’t anything that was ever part of my job really.” ACADEMIC 4

“I think if you’re looking at the researchers like do they have a responsibility (for wider impact)? I think some researchers are certainly driven by the idea they can have an impact on the world and that’s why they’re doing it. Others, I think, take great pride in the fact they’re doing research, there’s no relevance to anything whatsoever and whether its curiosity driven research or blue skies research some might even say it doesn’t matter whether it has impact or not, that’s not my concern.” ACADEMIC 2

“I mean I have spoken to academics in the past who just sort of said, well this is my research tell me when you’ve got somebody who’s interested and of course it’s not that simple.” ACADEMIC 3

“We have a team that actually work on impact but they would probably say that it’s not actual groups of stakeholders now it’s just individuals that still need to be convinced, so you may have one individual, an academic who is bang on the money, they love it, they out there doing it yet their colleague probably next to them probably not that interested in it.” NON-ACADEMIC 7

The argument for academic freedom to research whatever they think is important can come across as arrogance to professionals working in practice communities:

“Why don’t you work with us in public health? You have to go to some meetings, but you know then there may be little pots of money to undertake bits of research and they said, yeah but then I’d have to do what they want you know and I think academics should have the freedom to pursue what they think is important and I was thinking: ‘oh well in this day and age I don’t think life is really like that, yes we need innovation but we also, all across society, need to be working together to produce better outcomes for people, for the population’. So you know people do get a bit precious when they’ve got a university title.” NON-ACADEMIC 11

The criticism of research culture as being rather inward looking is not confined to academic researchers. NON-ACADEMIC 6 is critical of many commercial researchers working on European projects in this respect:

“It’s not the case for all of them, so but again yes I think the researchers are mainly focussed on their publications and not on their impact on how they collaborate with industry.” NON-ACADEMIC 6



NON-ACADEMIC 9 argues that researchers in the ICT industry need to be more business savvy and talks of a gulf between researchers and their colleagues within commercial organisations:

“Another issue is that these days in terms of evaluation, industrial impact has a very high ranking, high relevance however, even the people from the industrial companies for example from SAP, the largest software company in Europe, they tend to be researchers in the business, in these companies and they are not themselves linked to the business side. So even they themselves with their own results coming out of the project would need to sell them internally within their own company and my understanding is that it is as hard for them to sell to their own people as for other people from outside the company to sell to their own business people.” NON-ACADEMIC 9

While the routes to achieving impact and the timescales will vary enormously between different fields and types of research there is a strong argument that changing the research culture is fundamental to widening and deepening economic and societal impact:

“Even blue sky research will hopefully have an impact one day even if you can’t pin down what it is now, but it’s likely to be in this field and it might enable this and this was the research question we were asking and obviously there was a reason for asking that question you know. I do think it is about actually raising it in people’s minds, having an attempt at articulating it and depending how close to market your research is, then that attempt will be stronger and stronger of course.”

ACADEMIC 3

“Arguably you could say that it’s more straightforward for the more applied sciences, for engineering and healthcare and things like that, that actually focus around the real world societal challenges. But more difficult for some of the more underpinning research activities in let’s say physical sciences and maths for example, but there are still opportunities and it’s a mind-set that it needs to be taken on by individual academic researchers. But in order to do that it there needs to be that kind of culture or focus, in my opinion, it needs to be cascaded through universities from the top which it increasingly is now with structures within the universities around enterprise and innovation, rather than focussing purely on academic impact in terms of publications and quotations and things.” NON-ACADEMIC 11

#### *4.2 Signs of change*

In the UK the inclusion of impact case studies in the REF has put a focus on the economic and social consequences of research. There appears to be an awareness that the ‘rules of the game’ are changing. The question remains however, as to how far and how quickly researchers are willing and able to respond to the impact agenda:

“I’ve done this for ten years. For the first five years, it was relatively hard, there are a small number of individuals who you know are natural ‘impacters’. (With the REF) you can see that the academics are turning their attention to the new rules of a new game.” ACADEMIC 10

“One of the problems I think with it being the REF is it’s, certainly in my own institution, some people see it as a bit of a threat.” ACADEMIC 3

"I think most academics would see the current impact discussions, the way its portrayed as merely an extension of what I would call normal game playing in terms of what makes them promotable as individuals. " ACADEMIC 6

"It's a bridging evaluation where you're looking for something from a period of time from a cohort of people that weren't incentivised to do that. What I see though in the run up the REF is the bulk of the academic staff, understanding that their incentives are changing." ACADEMIC 10

"I think academic researchers need to get a better understanding of what impact is and what the different forms of impact are, I think the REF process has demonstrated that a lot of people think that disseminating research or getting it out there is impact whereas that falls, that can fall quite a long way short of impact." ACADEMIC 2

One sign of change may be in the debate about what skills are required for research in the contemporary environment:

"You know we're into a lot of debates at the moment about how should involvement in impact be rewarded and you know do we want everyone to be able to do it? Probably not. Just in the same way you don't want everyone to do public engagement, because not everybody is going to come across well on the TV, let's say, some people do and some people don't and I don't see why it would be any different for impact if people have research skills, they may or may not be good teachers and also, they may or may not be good 'impacters' if you like." ACADEMIC 11

"Yeah, absolutely it's like media appearance, which is not really impact as such, it's on the periphery I would say, but some people are great at it and others aren't and some people want to do it and some people don't, you know and school engagement, there's schools liaison is there for people. People are different and enjoy doing different things." ACADEMIC 9

One way of getting over individual limitations in terms of dissemination is to put together teams with an appropriate mix of skills:

"It's the same before the impact question popped in when it was just the research, everybody played to their strengths, you put a team together because they all had strengths and you could bring people together. It's the same way now that you're probably just adding an extra person over here or somebody with some skills there and you bring them in for that reason as well, so just now that the universities have the duty to support it I think." NON-ACADEMIC 8

Academic training could include more opportunities to experience roles outside academia and in certain sectors industry is increasingly involved in supporting doctoral training:

"I do firmly believe though that involving public more in research is essential, but I think it might be more achieved through academic mobility and you know swapping roles and job shadowing and that kind of thing." ACADEMIC 5

"We haven't really spoken about training and skills provision, which of course is a really important part. The industry are continually mentioning that there are insufficient highly skilled engineering graduates and scientists coming from the research base and, as a result of that, they are beginning to become much more closely involved with that training package, or those training packages that

increase the likelihood of suitable employment opportunities in the future. Things like a doctoral training centres are heavily co-developed and are co-sponsored by industrial partners and again they're looking at cross-sector activities, so I think it's increasing, I think there's more to be done but I think we're moving in the right direction overall." NON-ACADEMIC 11

Younger academics may be less steeped in an inward-looking research culture:

"I think somebody who sees the benefit of impact and I think a lot of early career researchers do, and they have become engaged with research at a time when impact is high on the agenda.....I think a lot of young researchers are actually starting, are actually wanting to research because there's something that they want to change." NON-ACADEMIC 8

But for younger academics an important issue relates to how best to build a research career based on both research excellence and achievement of impact. ACADEMIC 8 makes a strong argument for early career academics to initially focus on building their research profile before branching out into wider knowledge exchange activities:

"I think early career academics find it harder because they find it difficult to get traction on their research areas and interest in what they're doing and actually, as an early career academic, we're asking them to focus on research, get your papers out, that's all, and focus on getting your papers out. So this knowledge exchange mechanism, be it consultancy, be it contract research, be it collaborative research whatever it is, is left to one side a little bit because they're looking for research council funding to build a better research profile to further their academic career. Once they've got quite comfortable and secure within their position, they've got research papers out; they've got a small research group. They've got people on the ground to do things, that's when external organisations start to become a little bit more interested in them, because they've obviously been accepted as someone who's able to do things and they've got a team that they can do things with and so that's when collaborative or KE type activities come into play and that's when an academic is able to really start showing how they have made an impact." ACADEMIC 8

This raises an interesting question about at what stage in a career it is best for researchers to engage with the impact agenda. The danger of the approach, suggested above, is that research careers continue to be built on interacting with a purely academic audience and that habits once formed are difficult to change. Another approach might be to think less rigidly about the nature of 'the academic career':

"I guess in the future we might find people who have a different kind of academic career than the ones we're more used to, so for example I've employed a couple of quite young people in my new research office, who want a career in academia. They're probably in their mid to late twenties. In the past they probably would have become junior lecturers and taken that route, but they've both taken a job in my research office as project managers and they're still continuing their own research and they're still thinking that at some point they'll go into an academic department." ACADEMIC 1

Finally, the reward and motivation system for researchers needs more thought if it is to reflect what society requires from the researcher and supports changes in behaviour. There was not much evidence from this research that much has changed from the traditional 'publish or perish' environment:

"I think the researchers are mainly rated on their publications and not on their impact on how they collaborate with industry." NON-ACADEMIC 6

"I think there's more that still can be done, in a promotional criteria within the university, still very much focuses on academic excellence, and rightly so, but why not include projective and performance measures around collaborating with industry and outputs, outcomes and impacts in terms of contributions to the economy and wider societal challenges? While I think some do take that into account now, but I don't get a feeling it's widespread." NON-ACADEMIC 11

## 5. Identification of research users and engagement with them

Taking steps to successfully achieve impact requires the researcher to have a good idea of who is the potential audience for the research and what is important to that audience:

“Why are you doing what you’re doing? And if the answer is well because I’m curious that shouldn’t be a sufficient answer, there should be some other reason why somebody else should be interested in it, particularly if it’s publicly funded. Now that doesn’t mean to say it has to be adding to the bottom line of UK Plc, but you have to have some reason why you could persuade somebody else that it’s worth doing. I think it’s always worth challenging somebody to say well are you sure that’s the most useful thing that you could be working on?” ACADEMIC 1

Understanding who would be interested in your research and why they would be interested starts with identifying potential users and is facilitated by engaging with these communities. Academics are traditionally very well networked with other academics in their own fields, but often less connected outside of this. Connecting with user communities is far easier in some fields than others:

“It’s a social network so it might be constructed of a variety of different, multi-disciplinary professional contacts, potentially up to hundreds at a time, depending on who’s you know linked to each other.” NON-ACADEMIC 10 talking about the health sector.

“In the end it’s complicated because the industry is global and it also touches on lots of different disciplines, it’s inter- disciplinary and I mean in interacting with so many different types of trades at so many different levels, it’s a very diverse group of people with a tremendous amount of different types of skill sets and knowledge. So really you’re looking at a vast area of industrial development from materials to chemistry, physics, even to let’s say detection, inspection technology to fuels and other areas.” NON-ACADEMIC 5 talking about the energy sector.

From the point of view of potential research users, universities often appear to be difficult to penetrate and potential users may find it difficult to identify and engage with appropriate academics:

“Often a company when they approach university have no idea how to interact or who to go to and universities are these big cumbersome organisations where, who knows where the expertise lies?” ACADEMIC 8

“I think we need to find ways for users or potential users to really articulate what they would find useful and get beyond sort of just top of head. That would be useful if you could do that or I want to find out about this, so getting more of a dialogue between researchers and potentially users.” ACADEMIC 2.

NON-ACADEMIC 3 describes an example of possible unrealised potential in a project she has been working on for the last nine years:

“And you know it would be fantastic if a university came to me and said, look can we take some of the work that you’ve done and do a research study on that. Because, you know, we entered a competition that the cabinet office ran, two years ago and 350 other companies did it and we came second of the best new idea. But I still haven’t got the government to do anything with it, they you

know they marked it as being this is something we should be doing, but you do wonder if you could get some research funding for a university to take it up and actually take some of the work and do some of the crunching for us.” NON-ACADEMIC 3

NON-ACADEMIC 2 points out that dialogue is also important in effectively utilising research findings:

“There needs to be debate around what it says and how you interpret the findings, how you draw the right conclusions to make the right decisions out of it. What do we need to be informed about in order to make decisions? .....well to get some alignment with decisions that will have an effect on the business. NON-ACADEMIC 2

Gaining an understanding of the user community requires getting an insight into their motivations which may be a long way from the fundamental academic motivation of developing new knowledge. For example, people in businesses may have to demonstrate very clear benefits to justify giving their time to a research project:

“We find the right academic unit at the right university with whom we are able to interact in a sensible way and the result of that is that the company ends up with a better product, process or a new market opportunity in other words something that’s either reduced cost or increased sales. .... if I think about all the times I made cases to my line management in business to invest in a relationship with a particular university or academic group, that would always be the way I would justify it. It would be very rare that I would justify in other ways. I mean there are other reasons that universities can get together with business but if you’re talking just about what is research impact for business, it’s about reduced cost or more profits or more new products and processes and opportunities.” ACADEMIC 6 talking about his previous experience working for a company that engaged with universities.

“If they’re not happy they don’t get involved.....they sometimes have rather narrower conceptions of what they might get out of the research than the academics involved, so there’s a danger they might distort or narrow the focus.” ACADEMIC 2

In working with business, the researcher needs to understand the type of problem and the timescale the potential user is working to:

“I was going to say there’s two types of businesses not true, but let’s pick two types of businesses, if those who have the problem today we need to get this working by next July or whatever it is, or the year after if you’re lucky, this is a problem we have, this what we want to work on that’s fine. And I think there’s the case there if it fits in the Venn diagram of your wider work within the university or wherever you are then that’s fine. And you can put resource into it, that’s fine. But I think there’s also companies who are looking further ahead than that and just saying, well you know this is a long term development thing, yes we need some things out of it, as we go along, but actually we see this as being part of a much bigger picture, unfortunately those companies tend to be in the minority we find, well we’re surrounded by SME’s which probably affects that a bit.” ACADEMIC 3

Taking up this last point about Small & Medium Enterprises (SMEs) it is important for the researcher to understand the resources and capabilities that may be available to users:

“I think again it will vary by sector; it will of course vary by the size and available capacity of the industry or the company.....(larger companies may often have) more resource in terms of available staff effort and obviously available capability in terms of perhaps facility, access and also obviously resource to contribute directly to research investments.” NON-ACADEMIC 11

The examples above have mainly related to working with businesses, but similar challenges can be seen to exist in understanding other potential research audiences and user groups. Fundamentally researchers need to understand the user context for their field of research and what questions are important:

“I think you just need to think about the possible public engagement and knowledge exchange strategies and tailor them to the research field that you’re in so they’re all, be different barriers for different types of research field and its knowing how to get around those. I don’t think we can say, ‘oh this research field is so much more difficult than another one’. I just think that you need to be able to understand the context that you’re working in and actually impact can still happen and just probably differs in the pathways that you take.” NON-ACADEMIC 8

“So I would just say that it’s about what, for what purpose, what use the research has and so I think that there is, there should be a degree of consideration of who we are, about making sure that you choose a question that has current value and current applicability.” NON-ACADEMIC 5

## 6. Collaboration

Underlying much of the discussion on achieving wider impact is the idea that by collaborating with appropriate stakeholders research will be conducted that will be useful to potential users and therefore is more likely to be acted upon. Furthermore, in many fields there is an argument that the inclusion of different points of view will improve the quality of the research:

“So when you form these partnerships in science it might be with a big industry or corporation, in social sciences it might be Oxfam or disaster relief for example, that’s a lovely example actually, you know how relief camps are often so poorly constructed, they get constructed without knowledge of the geographical layout of the area, so that often causes problems, anyway so you might be working with them or you might be in the arts and humanities working long term with a museum or a restaurant or the BBC or publishing. The point is that these long term partnerships put you in touch with people outside academia who are involved in as it were, real world problems with real world thinking and real world data. So the involvement with these long term partnerships provides an extra stimulus for thought, an extra team of bright minds, because, of course, the universities do not have a monopoly on cleverness and an extra stream of information.....so the reason that one forms these partnerships is actually because you do better research.” ACADEMIC 7

Many of the interviewees put the case for involving stakeholders from the beginning of the research process in order to co-create knowledge:

“I think it’s critical in order to increase the likelihood of early stage research becoming a commercial reality, the individual researchers that are the brains behind the idea ultimately, have a requirement to engage with the users or the potential users of that research, at the earliest opportunity and engage with them in a kind of co-developmental fashion, so that the research challenges are aligned to the user challenges.” NON-ACADEMIC 11

“There’s some very strong advocacy in public health for not only a good level of public/patient involvement at the beginning and throughout, but also participatory research and community level research and obviously there’s a huge risk of going down the line of doing a piece of research that nobody is going to find either useful or interesting because you haven’t had that sort of input in.” NON-ACADEMIC 10

“I think I would emphasise the importance of involving research users at a very early stage in the research, in the design of research project, so involving them in the consultation. What is in the research questions? What’s important for the research users? Because all of those things will enable the impacts that you want to come later. The research users generally will have much broader network of contacts outside of academia to share with so yeah I think that would be my main emphasis.” NON-ACADEMIC 8

“Potential users should be involved at the beginning..... and they should be guiding the universities to what the outcome could or couldn’t be. This is what I do with (name of university)..... they’ve got some PhD students and I personally, work with the university guys and the PhD students. So you know we help and guide them, mostly because of my own interest in academic, in the academic side of things, that’s why I do it.” NON-ACADEMIC 4



"I think increasingly because research councils are asking for impact or research is being done through knowledge transfer partnerships and so on, I think users are being drawn earlier on in the process and personally I think you know the earlier the better, partly because it makes for better research and partly because you're better able to, you've got closer roots to impact." ACADEMIC 2

However, it may not be easy to identify and include research users and there may be circumstances in which there is a need to balance practical considerations against the desire to involve as wide as possible a range of users:

"There's something I think about identifying first of all the right people, because it's very hard to get absolutely everybody. You don't know necessarily that you're going to get representative input at the right level. It may well be that it's sort of over complicating within the scope of the research that you're doing as well. Certainly for this last piece of research that I've been involved with, it's been very quick turnaround and I suppose there's a little bit of perception that it's going to complicate and draw out the research process when you want to be able to deliver some outputs fairly quickly." NON-ACADEMIC 10

Creating collaborative networks and infrastructure often require strategic investments over a significant period of time:

"I would say that's the biggest change, I would think it's the creation of an environment of strategic partnerships outside academia within which researchers regularly do their business, within which their communication happens. So the northern eight research intensive universities have been working now for about four or five years together in looking at how we can jointly do our research, how we can jointly run industrial fora and partnerships, and that leads right down to facility sharing as well. So we can get a lot more of economy and efficiency out of the UK support system this way." ACADEMIC 7

A strategic approach is required because collaboration is about building relationships and trust, which takes time, resources and commitment:

"So I think it's the classic kind of organisational evolution where there is trust between the researchers and the innovation centre and that took years to build." ACADEMIC 10

"I mean we have things that take several years before we actually end up with anything in place because in the meantime we're building up a relationship where probably we'll do something with them and we'll go and see them occasionally. They may come and do a guest lecture or something, we'll have some students go and see them so yeah there's a whole pile of things that are about relationship building rather than about research and impact, because I think at the end of the day we do business with people and I think that relationships and that trust is just so important..... I think when you're working like that in partnership quite often with new partners there's the confidence building thing as well, so you'll do something shorter term first, you know, use your facilities, uses your existing knowledge, which is on sort of one set of terms, before you actually start looking at building up a genuine long term partnership to develop new knowledge and do research that actually will have a later impact rather than an immediate one." ACADEMIC 3

Nurturing a strategic collaboration at a local level can lead to a stream of opportunities over time:

“They have a research centre just a few miles up the road and that’s where it started, but they also have research completely globally, so we now have 40 or 50 projects going entirely globally through (name of company), but as a result of that they are introducing us to other industrial companies that they’re in contact with, as it were up and downstream in their product portfolio, and we’re introducing them to other academic partners who have skills that they need that we don’t possess, because of course none of us can do everything. So that’s another opportunity that’s working very, very well.” ACADEMIC 7

Other institutions and bodies can also play a vital role in creating networks for future collaborations:

“That’s a particular role that we see ourselves playing in, I mentioned brokerage earlier, and for us I think brokerage includes creating communities both online: it’s the linking with other systems and there’s promoting the distance of the knowledge base capability and the user challenges. But also face to face through things like events, and other kind of groups like special interest things like that, that we actually support financially in order to bring those communities together”. NON-ACADEMIC 11

Research councils and funders at the UK and European levels are making collaboration a pre-requisite for receiving funding in many cases:

“Very much we encourage the involvement of users and partners, research partners outside of academia from the very outset of a project or a proposal from our experience, it’s the best way to ensure that there’s going to be a link there between the research and putting into practical use.” NON-ACADEMIC 7

“I think a lot of it is about the nature of the grants and certainly a lot of European grants, you know, one of the key things they’re looking at there is actually the partnership side and sharing things.” ACADEMIC 3

But it is important that this collaboration is translated into practice rather than just being a mechanism to secure funding:

“Also to have the collaboration mechanism whereby on a day to day basis that these people actually do work together because, quite often, when you have all these different skills and different types of people involved from different organisations, whether they’re from companies or from academia or from research institutes, they work very much on their own.” NON-ACADEMIC 9

## 7. Research dissemination and open access

### 7.1 Open access

In the UK there are moves to open up access to publically funded research. This potentially threatens the model for funding of academic journals based on paid for access. The respondents were asked whether they thought open access would have an effect on the dissemination of research. The answers given were mixed. While many of the interviewees considered open access to be a good thing, in principle, there was also a recognition that effective research dissemination is about more than just making journal articles available:

“Yeah, definitely on research dissemination and it could obviously act as a stimulus to impact if more people were able to access research more quickly, then in theory they can do stuff with it.”

ACADEMIC 5

“But that’s only a facilitator I mean you can build the field in your dreams, but you need to attract people to it. So there’s certainly a large advocacy role required in order to help academic staff promote their work, I think that’s probably not too strong a word, because I mean there are various studies that show that you know if you tweet about or blog about your outputs then there’s higher take up.” ACADEMIC 11

“I know it’s believed to be, I don’t think there’s any evidence of that at all, I don’t think so within these partnerships you see. I mean no one waits for the journal article to come out and I’m afraid I think the government is seriously misguided on open access I mean I think it’s very deeply, deeply valued but I think there’s very little evidence that companies are now doing much scouring the literature. There’s no time for it, they need to get to know the right academic partners so they know what’s happening months or years even before it’s published.” ACADEMIC 7

“Last night I was with the CEO at Tesco, the CEO at T Mobile, their cycle times are in eight week periods and they are pushing online stuff out and trying it..... you can’t run to a cycle time of publication of two years in this world.” NON-ACADEMIC 2

Providing research findings in ways that communicate effectively with different user groups often requires a degree of translation/filtering:

“Well I think, you have to look at the quality, the quality of standards I mean we do quite a lot of filtering here and I think that process and rejecting things that aren’t right or aren’t significant enough or just boring frankly is an important role. With open access it’s just a nightmare I mean it’s something like an RSS feed on the internet where you just have everything. You need that filtering process done by somebody who’s not only familiar with the industry but also is familiar with what good content is.” NON-ACADEMIC 5 talking about his trade publication

“I mean one of the things that we’ve looked at on that front and haven’t yet decided upon, I mean personally I think it’s a great idea, is to write two abstracts, one which is the actual abstract and one which is the lay persons abstract and I think quite a lot of people are working on that idea at the moment.” ACADEMIC 11

“If you’re a really busy civil servant then you get a consultant to do it for you. Typically the mechanism there is the government hires a consultant and the consultant looks at the literature and it’s re-written into the sort of prose that the government can understand.” ACADEMIC1

“Unless you translate the knowhow to where it’s needed and that usually is embodied in individuals, the overall process doesn’t go nearly as well as it should have done.” ACADEMIC 6

NON-ACADEMIC 1 is supportive of medical/health research being widely accessible. However, she makes the point that this can lead to misinterpretation:

“I mean it presents some problems because sometimes their difficulty in interpretation of those and that’s a daily problem for us in a statistical world that explaining something might have a highly statistically significant difference but actually isn’t really very important or they might be quite an important appearing difference that doesn’t quite reach statistical significance, so sometimes you know we try to write things in an accessible way that virtually anybody who’s an educated member of the public could read our reports.” NON-ACADEMIC 1

Open access raises questions about the funding of publication which has potential implications for academic researchers in some institutions:

“I think the other side of it is where does it pass on the costs to? Because if the researcher is taking on effectively the cost of publication in most cases this can be quite expensive in itself. And if research institutions or individuals don’t have the budgets set aside for putting it through publication then that in itself could actually be a barrier, I think, to open access working.” NON-ACADEMIC 10

“There’s certainly a worry from smaller universities that, we won’t necessarily be able to invest substantially in helping people get their research out there.” ACADEMIC 4

## *7.2 Dissemination*

Finding effective ways to widely disseminate research results is a major challenge in a multi-channel media environment, where there is extreme competition for audience attention. Traditionally a university produces press releases about an interesting piece of research, as described by NON-ACADEMIC 5 the editor of a trade journal:

“I would say that we often say that our press releases and so a lot of what we are aware of comes through that avenue so I think it does have an effect if there’s interesting work going on in our industry, a press release will make it much more available to us, for us it’s a very useful way to get in the front door. But there’s definite cost to that and it shouldn’t be necessary really to have someone else to rewrite the work that someone has done, but they go in different streams I mean the research has one means of publication and the press release is entirely different avenue.” NON-ACADEMIC 5

However, the new media environment has provided opportunities for researchers to interact with user communities and some have made good use of this:

"It's almost like blurred the boundaries between policy makers, researchers and you can access contacts, anybody anywhere pretty much. Just because the internet exists even you know just with what, with a single email. You know things like Twitter are amazing for getting the word out there about things." NON-ACADEMIC 7

"Personally I think we'll see a transition over the next two or three years to it being more embedded and it could then become more and more part of academic life. You know, you think of the number of academic staff who are very active on Twitter and Linked-In, they're already communicating directly with a lot of people ..... and it's not necessarily just a speed thing, it's just a different way of working which is partly enabled by technology" ACADEMIC 5

"I think in parallel we're also seeing people who have their own blogs almost outside the institution and the old kind of dissemination methods. You know we've got academics here who have got quite a high profile in their own right for what they do, particularly if they're in the areas of performing arts for example and dance and those people have got, they've got their own blogs going." ACADEMIC 4

"I mean I see a lot, I use social media quite a lot and I see the channels that I tend to use, Twitter certainly because I tend to use it more for work than for personal use. You do tend to get a lot of people sharing examples of work and practice and lot of commentary there and following through on some of the points which I find very interesting. Particularly, what in the first instance grabs something sufficiently for somebody to want to share it and then after that people continually re-tweeting to other people and you get this sort of cascade effect." NON-ACADEMIC 10

But researchers in general are probably a long way off from making the most of the new media environment:

"I'm not convinced that the standard traditional journals plus conferences is enough now.....With the internet everything is, the internet basically messed everything up.....but I don't know we've worked our way through." NON-ACADEMIC 5

"So there's certainly a large advocacy role required in order to help academic staff promote their work, I think that's probably not too strong a word, because I mean there are various studies that show that you know if you tweet about or blog about your outputs then there's higher take up." ACADEMIC 11

This raises questions about how best to support researchers in relation to dissemination of results. Do you rely on researchers doing it for themselves or do you provide professional support?:

"Some universities, as you will have spotted, have impact officers now. If we did decided to go that way then one of the things that would become their responsibility would be: let's pick our best papers, best ten papers this week or whatever and make sure that we have a quick chat with the academic staff and kind of write the lay abstract and impact strategy. We have the press office who that sort of thing as well, but it's just one the many things that they have to do, so it perhaps doesn't get done as often as it might and of course it's not an abstract which then gets associated the researcher it just becomes a press release sort of thing." ACADEMIC 11

It is also important to remember that dissemination does not just happen over the internet. Pro-active dissemination will usually involve using networks in a number of different ways:

“We produce working papers but we also produce summaries of working papers and we send out emails saying what they’re about and we have teleconferences for our members and we have dinners at which we present the results of our research and discuss them and having conferences, where we also present our results and invite other people along. And respond to invitations to organised briefing for people. So there’s no one single answer because academic articles tend to be pretty opaque and unless they’re explained and it’s pointed out whether and how they’re relevant, they probably just stay on the shelf.”ACADEMIC1

The establishment of collaborative networks by universities is one way of providing academics with a route for dissemination to their potential users:

“A lot of researchers have a requirement, but more importantly they have the desire to disseminate the essence of their research and the networking platforms that we provide are pretty heavily used by the academic researchers to disseminate their insights and they’re pretty heavily used by the start-up community and the wider innovation communities, that includes medium and larger sized companies. So it’s an informal exchange of knowledge through conferences, small conferences focussed on business innovation and that is very successful. That works very well. Each one of those has a programme of mini conferences, networking events. A classic situation of three or four speakers, speaking to 50 or 60 people, followed by coffee or wine or whatever type of networking exchange of knowledge. Usually out of that group of speakers one will be associated with (university name) research and so they are able to disseminate their findings to the business audience and make them aware of what we’re doing and that may, and sometimes does lead on to other conversations.” ACADEMIC 10

## 8. Conclusions

### *8.1 Developing impactful research practice*

PACEC's research (April 2012) confirms that at a high level Higher Education Institutions (HEIs) are responding to the wider impact agenda with 80% of HEIs taking steps to align with the priorities of Research Councils and TSB and 80% seeking changes to help improve the efficiency and effectiveness of knowledge exchange. However, they conclude that there is an urgent need for academics across the board to engage with the research impact agenda. The interviews conducted for this report were designed to get feedback on the experience and challenges of achieving wider social and economic impact on the ground, from the perspectives of senior academics and from non-academics with a perspective on research.

At a high level the impact agenda is very clear. The academic interviewees are generally fairly senior in their universities. At this level there was a good understanding of the agenda, but when you go into the many different fields and the many different ways that research can impact on the wider world the complexity becomes apparent. Measuring traditional academic impact through publications and citations is so much more straightforward than trying to record the range of societal and economic impacts. How do you attribute the contribution of a piece of research to a policy change that has been influenced by many factors? Increasing collaboration in research is desirable, but leads to more complexity in pinning down attribution. Sometimes the cost of assessing impact outweighs the benefits.

Despite these challenges the experience of having to prepare impact case studies across all subject areas for REF 2014 suggests areas of wider impact can be found across the board. The way that impact can be achieved will vary greatly depending on the nature of the subject and the type of engagement that is appropriate to the audience for the research. The most appropriate routes to achieve wider impact can be summarised in three categories:

- 1) Public engagement.
- 2) Engagement with professionals, industry (including commercialisation) or organisations.
- 3) Engagement with policy makers.

Whichever combination of routes is most appropriate a lot of time and effort will usually be required to create impact. This raises a number of questions about the responsibility for achieving impact and the support that is required. Do the skills and motivation of researchers equip them for this?

The Wilson Review (2012) recognises the need for culture change to meet the needs of the new agenda. Our interviews suggest that while awareness of the impact agenda has increased it is not clear that behaviours have changed substantially. Some will be more willing and able to create impact with their research. People with the motivation and application to do research do not necessarily have the motivation or skills for impact creation.

This raises a number of training and career management issues that need further consideration:

- 1) Career management – at what stage should early career researchers engage with knowledge exchange?
- 2) Training – What skills are required? How far should impact skills be built in to PhD training?
- 3) Placements and internships- How to provide opportunities for early career researchers to get

experience of working in user communities?

4) Recruitment – What are the appropriate requirements for people in research roles?

5) Established researchers- training requirements, motivation and promotional criteria?

This last point is an important one. For the foreseeable future the research community will be dominated by people who have spent most of their careers in the traditional research world in which wider impact was not emphasised. Changing the practice, where necessary, of existing researchers may be the most immediate challenge.

### *8.2 Strategic support for impactful research*

The Wilson Review (2012) recognises the importance of networking between universities and the business community as part of an effective innovation system. Firms interact with universities for two main reasons a) to access knowledge and b) to create knowledge. Research by the Big Innovation Centre (2013) suggests that the performance of the system for accessing knowledge is considerably better than that of creating new knowledge.

Innovation is all about creating new knowledge and this requires co-creation between academic and user communities. Taking this step requires the building of relationships and the development of a high level of trust and understanding. Relationships tend to be built over a long time period which takes time, resources and commitment. Collaboration will probably start with specific projects with specific academics, designed to solve particular problems for an organisation. This is often a necessary precursor to building a long term partnership to develop new knowledge.

External organisations engaging directly with individual academics is the most frequent mechanism for initiating activity (74% of cases), in contrast with 13% of cases where Knowledge Exchange Officers initiate contact (PACEC Report April 2009). This represents a dilemma. Effective collaborations are most likely to start between individual academics and outside organisations, but co-creation of knowledge will probably be more effective through building up multiple connections and a trusting relationship between the university and the outside organisation. Universities and individual faculties need to take a strategic approach to building networks and providing opportunities for research staff to interact with different communities. This does not absolve researchers from developing their own networks, but recognises the importance of encouraging engagement with the community at all levels and the need to build long term relationships.

From the point of view of the world outside of academia, identifying and engaging with appropriate academics in an effective way is not always easy. Universities are often seen as impenetrable and many people in businesses and other organisations may not understand the role of academics, outside that of teaching. How far has the move towards achievement of wider economic and social impact message been communicated to the business world? Most organisations do not have experience of working with universities or academics and employees will be unwilling to engage unless they can justify the time involved in terms of benefits that are relevant to them. Universities therefore have an important role to play in communicating their willingness to engage with business and community, in establishing collaborative networks and in turning situations where outside organisations wish to access knowledge into longer term co-creative relationships. In this respect, there is a strong connection with university teaching activities and student placements which are the main connection between many organisations and universities.



This raises a number of strategic issues for universities and other research institutions:

- 1) What needs to be done to raise awareness of the wider impact agenda within that institution's user communities?
- 2) How can complex research institutions, such as universities, most effectively communicate their strengths and capabilities to appropriate potential users?
- 3) Which existing connections between the university and outside organisations should be developed into, wider, deeper more long term relationships?
- 4) What organisational structures work best in supporting a wider impact strategy?

### *8.3 Tactical support for impactful research*

Technological developments are revolutionising communication and the new media environment is an important factor in considering how researchers can bring attention to their work both inside and outside the academic community. Open access is viewed positively by many of the interviewees, but research dissemination is about much more than making journal articles generally available. While developments in social media have created new opportunities for interaction with user communities, our research suggests that most researchers are probably a long way off from making the most of the new media environment.

This is not surprising considering the time and effort that may be required to identify users and to build appropriate networks. In addition not everyone has the know-how and skills to present their findings in the most effective multi-media formats. Institutions may choose to provide support for this in-house or buy it in. The challenge is to maintain the integrity of the research, while making it meaningful to the target users.

There are a number of tactical issues around dissemination:

- 1) How far have most researchers identified their potential user communities?
- 2) How can researchers access and use the most appropriate networks to disseminate their findings to user communities?
- 3) How can research results be presented effectively using the opportunities provided by new media?

## References

Big Innovation Centre Report (2013) Collaborate to innovate: How business can work with universities to generate knowledge and drive innovation. Authors Andersen, B. De Silva, M. and Levy, C., July.

PACEC [Public and Corporate Economic Consultants] and Centre for Business Research, University of Cambridge (April 2009) Evaluation of the effectiveness and role of HEFCE/OSI third stream funding. Report to HEFCE

PACEC [Public and Corporate Economic Consultants] (April 2012) Strengthening the contribution of English Higher Education Institutions to the Innovation System: Knowledge Exchange and HEIF Funding. A report for HEFCE.

REF 2014 website: <http://www.ref.ac.uk/panels/assessmentcriteriaandleveldefinitions/>

Research Councils UK website: <http://www.rcuk.ac.uk/kei/Pages/home.aspx>

Lambert Review of Business University Collaboration (2003):  
[http://www.eua.be/eua/jsp/en/upload/lambert\\_review\\_final\\_450.1151581102387.pdf](http://www.eua.be/eua/jsp/en/upload/lambert_review_final_450.1151581102387.pdf)

LERU – League of European Research Universities (2012), Research universities and research assessment, May.

Wilson, T. (2012) A Review of Business-University Collaboration.  
<http://www.hefce.ac.uk/news/newsarchive/2012/name,69548,en.html>

## Appendix: Profile of interviewees

Code	Roles	Institution
ACADEMIC 1	Professor and President of international association of users with members in over 100 nations.	Russell Group university
ACADEMIC 2	Pro-vice Chancellor Responsible of research and business engagement across the university.	Post 92 university
ACADEMIC 3	Head of Centre for Collaboration & Partnership.	Post 92 university
ACADEMIC 4	Director of Research and Business Development.	Post 92 university
ACADEMIC 5	Manages a team concerned with research policy, impact and performance.	Russell Group university
ACADEMIC 6	Former research scientist and user of university research at large multi-nationals. Now Director of Research & Innovation Services at a university.	Russell Group university
ACADEMIC 7	Professor and Pro-Vice Chancellor Research.	Russell Group university
ACADEMIC 8	Head of Business Gateway, including technology transfer unit.	Russell Group university
ACADEMIC 9	Head of Research Support Office in the Business Partnership Unit. Responsibility for REF within her institution.	1960s research-led university
ACADEMIC 10	Director of Innovation Centre. Runs five business innovation networks and also running a portfolio of short courses to train entrepreneurs in certain business skills.	1994 group university
ACADEMIC 11	Director of Research Services.	1960s research-led university
NON-ACADEMIC 1	Commissioner of research for large public health authority in the UK.	UK public health authority
NON-ACADEMIC 2	Non-Executive Board Director. Formerly liaised and published with academics, while in senior role at major blue chip international company.	Non-executive director for a number of organisations
NON-ACADEMIC 3	Market Researcher. Previously Visiting Fellow at a university.	Market research company
NON-ACADEMIC 4	Worked in R&D in telecommunications industry since 1978. Wide experience of working with universities on research. Currently has own company and continues to work closely with a UK university.	Telecommunications company
NON-ACADEMIC 5	Editor of international specialist publication in the energy sector.	Publishing company
NON-ACADEMIC 6	Coordinator of projects for a European national research institute.	Research Institute
NON-ACADEMIC 7	Dual role: National Contact Point for European projects. Employed by a UK research council.	UK funding body
NON-ACADEMIC 8	Dual role: National Contact Point for European projects. Employed by a UK research council.	UK funding body

NON-ACADEMIC 9	European Researcher with 25 years' experience, including some years working for European Commission. Reviewer and expert for EU projects.	IT services company
NON-ACADEMIC 10	Undertaking placements as part of training to be a public health consultant. Working with university and public health professionals.	UK public health authority
NON-ACADEMIC 11	Liaison manager responsible for building and maintaining relationship between a major funding body and research councils, other research funders, business and the universities.	UK funding body