Social impact assessment in the Social Sciences and Humanities: an application of the SIAMPI approach.

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Cover note

This study tested the applicability of the SIAMPI framework across different contexts in the Social Sciences and Humanities (SSHs). The objective was to analyse the social impact of a large research initiative funded by the UK Economic Social and Research Council (ESRC) and of the research groups in Social Sciences and Humanities of the Spanish Council for Scientific Research (CSIC). While the natural subject of an ESRC assessment was to be one of its investments and was therefore clearly time-bounded, for the CSIC the focus was on research performing units developing their activity over a long period of time, without an end date. The main research question was whether the SIAMPI framework could be equally applied to such different contexts. The analysis was not structured as a single case study, but as two contrasting assessments of the social impact of research in the social sciences and the humanities.

For the ESRC we analysed the social impact of a “Research Centre”: the Centre for Business Relationships, Accountability, Sustainability and Society (BRASS). For CSIC, our objective was to analyse the social impact of its SSHs research there. At CSIC, we focused on 15 research groups that our previous research had identified as having relevant extra-academic activities and which provided a broad coverage of the wide variety of research fields covered by CSIC in the SSHs.

In both cases, BRASS and CSIC, every project or group displayed its own dynamics, building its own contacts from the bottom up and without apparent central lead. This explains the diversity of interactions across groups and projects. We identified a wide variety of “productive interactions” both in the UK and Spanish cases but no clear dominant mode. There were, however, some dominant traits. At CSIC direct informal interactions were very important and they were almost always long-term: many CSIC interviewees had known the same stakeholders for more than 20 years. Small research groups had established long-term links with small stakeholder groups (often individual-to-individual) with whom they often collaborated without the intermediation of any contractual tool (mainly because the links were not associated with financial arrangements). The situation at BRASS was different: many of the interactions we encountered had been initiated and developed within the life of the Centre; they did not predate its creation. In both cases, however, indirect interactions established through publications were often the initial step that led, eventually to other types of interactions. In several occasions we found that non-academic stakeholders had initially learnt about a researcher or research group by reading their work; this indirect interaction lay behind further steps usually taken by the stakeholder to eventually establish a direct link with the academics.

As far as the social impacts are concerned, in some cases we found a clear, attributable effect, which could even be assessed in monetary terms. For instance, the application of social marketing techniques developed by the BRASS team for the fire services in Wales led to an identifiable reduction in grass fires; this effect could be clearly identified and arguably assessed using standard techniques applied to the impact assessment of marketing campaigns. In other cases, we found an identifiable and clearly attributable outcome of the interaction whose impact remained problematical to measure. This was typical, for instance, of social impacts derived from research activities in the humanities. For
example, the discovery, “translation” and publication of Spanish XVIth Century music was arguably a valuable contribution to the preservation of Spain’s cultural heritage; but the audiences for this kind of music remain small. The measurement of the value of this contribution depends on the extent to which popular demand for these cultural goods is considered to be a crucial element in the impact assessment. Further, in other situations the research had been one among other contributions to a complex policy processes. For instance, one of the BRASS projects had helped bring together different communities with divergent interests over mining operations in Argentina, here we can identify some results of the interactions but their ultimate impact can only be attributed to a variety of factors.

The SIAMPI approach and interview questionnaire has proved useful in eliciting responses and encouraging reflection by interviewees; it allowed the identification of interactions and social contributions that had not been previously visible to research managers. We have used the original SIAMPI questionnaires and guidelines with a few changes to adapt them to the different contexts in which they were used. It is clear from our experience that a single questionnaire cannot be used across different contexts and that adaptations will be necessary; yet these adaptations are small and do not affect the conceptual framework or the structure of the questionnaire.

There are, however, some generic methodological difficulties and possible limitations in the approach. First, it implicitly hinges on a clear distinction between academic and non-academic (stakeholder) communities, which are linked through “productive interactions”. Yet, in practice, this distinction does not always appear to be as sharp as we had implicitly assumed. Second, the approach is better at identifying some types of interaction than others. In both the Spanish and UK cases our study recognized many interactions revolving around direct (personal contact) mechanisms. Although we also found, through the interviews with stakeholders, that this direct interactions were sometimes preceded by indirect ones (mainly through texts), it was only when a direct interaction had taken place that we identified the existence of an indirect link. Our “point of entry” into the enquiry is the researcher, and it is often very difficult, if not impossible, for researchers to be aware of the readers of their work and the potential use that they have made of what they have learnt by reading, say, a book, an article or a report. When the main channel through which a social impact has taken place is an indirect one, researchers may not even be aware of the use social use given to their work.

This bias in favour of the identification of direct interactions is, however, very difficult to address in evaluation practice. Third, our approach emphasizes interactions and therefore the mutual influences to which researchers and stakeholders may subject each other, it is good at identifying feedback mechanisms, iterations and complex relationships between researchers and stakeholders; yet, by taking this approach the data we collect does not follow a storyline, which naturally tends to reflect a linear process. The storylines are however central to our understanding of how social impacts have taken place, in the qualitative approach we have developed we cannot do without them.

To sum up we have found value in the conceptual framework adopted, we have applied it to very different contexts, but the specific research questionnaires we have used need to be adapted and modified to fit different situations and yield data that can be more easily presented as stories of specific processes through which impact has taken place.
Introduction: the impact of the Social Sciences and Humanities in different contexts

The SIAMPI approach

The SIAMPI approach is based on the assumption that for social impact to take place an interaction between researchers and non-academic stakeholders must have taken place. We identify instances of impact by “tracing forward” through these interactions. The aim of this approach is to apply a method that can be followed in each case study and thus provide us with grounds for comparison in the cases on a number of vital aspects.

To identify social impacts we structure our empirical analysis into three main blocs:

1. The analysis of the context within which social impacts attributed to research programs or activities occur. By context we mean the circumstances surrounding the situation under analysis (in our case either a research project or program, or a research group or institution). Contextual issues are crucial to our understanding of the social impact of research and are at the core of the evaluation methodologies upon which our approach directly builds. The institutional setup, the social domains targeted by a research group/program (if any), the stages of the research under analysis, the types of potential stakeholders (their potential users and beneficiaries including those that are not directly related to the research effort), their attitudes and expectations and those of researchers, and the policy and economic environments, are all examples of contextual issues which may have a bearing on the types of interactions that researchers and stakeholders develop and the forms of social impact that we are able to identify.

The mechanisms through which research activities lead to a socially relevant application we refer to as “productive interactions”. An interaction occurs when there is as a “contact” between researchers and individual or groups outside academia with a potential direct or indirect interest in the research and its results. These individuals or groups can belong, among others, to policy communities, professional groups, industrial organisations, or the public at large. The contact can be mediated through various means, as for instance a research publication or other written means; it does not need to be personal. Particularly importantly, however, among these interactions are the social exchanges between researchers and societal actors in collaborative settings. The interaction is productive when it leads to efforts by stakeholders to apply research results to social goals. We understand this definition in a very broad sense: for instance, an effort to understand the results of academic research, or to work together with an academic researcher in the (co)production of research is productive if the intention of the stakeholder is to apply the results of these efforts to social goals. If, for whatever reason, this intention is not fulfilled, the interaction remains, nevertheless, “productive”.

2. The concept of “productive interaction” is central to our analytical framework. We assume that for research activities to have a social impact, a productive interaction linking the researcher and other societal actors must have taken place. Through the identification and tracking of such productive interactions, we aim to identify and analyze the social impacts of research. By focusing on interactions, and by closely following the ways in which researchers and stakeholders use these interactions to communicate about research and its goals, and also about societal demand, possible problems, and challenges facing the particular problem to be addressed, we believe that we will be able to enlighten the issue of social impact assessment and in particular the associated attribution problem. To be sure, we do not take interaction as a proxy for impact, but aim to identify what kind of impact is brought about by the interactions.
If they appear to be absent we take such absence to indicate a lack of social impact of the research group, area, programme or institution under study.

3. The identification of the social impact or effects of the work of a research individual, group1 or program in a relevant context. We will deem an impact to have existed when we can identify changes in stakeholder behaviour (what stakeholders do) linked with the application of research results and traceable to the productive interaction. These changes can be of very different types; they include the use in applied practice of new products (including new cultural products), new skills, new “soft tools” (analytical approaches, statistical models, clinical guidelines, codes of conduct, procedures...), the development and implementation of new laws and regulations (or the elimination of existing ones), the development and implementation of new policies and of changes in existing policies, the introduction of new services, the use of new ideas and arguments to develop actions, etc.

The ways in which impact occurs will vary across research areas and different forms of interaction. There is therefore a need for a consistent classification scheme of different ways through which such interaction can occur. To this end we have to assume a basic model of productive interactions and the processes involved. We distinguish:

- **Direct**, in the sense of “personal”, interactions involving direct contacts between humans, interactions that revolve around face-to-face encounters, or through phone, email or videoconferencing. Direct personal interactions include formalized contacts through established institutional channels (joint research centres, research projects and programmes, technology centres, firms,…); and informal links like, for instance, old friendships or collaborations that are not mediated by any contract or formal agreement.

- **Indirect** interactions are contacts that are established through some kind of material “carrier” of the interaction, the publication of texts or other written means of communication, but also for instance exhibitions, models, films. Potential users of research results may become aware of such results after reading a journal article, a newspaper article or seeing a piece of news in the media. The material carriers for indirect interactions include, among others journal articles, scholarly books and other academic printed media, newspaper, magazines and other popular printed media, grey literature and reports, Web content, exhibitions and exhibition catalogues, policy documents, clinical guidelines, standards, codes of practice, blueprints and designs, musical arrangements. These “texts and artefacts” can provide the means for a “productive interaction”.

- **Financial** interactions occur when potential stakeholders engage in an economic exchange with researchers. Financial interactions include contract research and consultancy, collaborative research between academic and non-academic partners involving total or partial financial support from the non-academic party, research grants offered by the public sector or private foundations, etc. For the interaction to be “productive” the research activity or its results has to be linked with identifiable efforts on the side of the non-academic partners (usually the funders of the research) to do things differently, or to do new things.

Interactions are often complex and involve different ways of contact and exchange; either simultaneously or longitudinally through time. For instance, an academic can act as a paid consultant to a government office (financial), write reports that are read by officials (indirect) and hold meetings with her clients (direct); three forms of interaction occur simultaneously. An interaction can also start as merely personal contact and develop into a financial relationship. The combinations across different

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1 A research group is loosely defined as a group of researchers with a shared mission operating under the same management structure.
types of interactions can be very diverse, and it is the objective of any impact assessment to identify the different types of interaction involved as they can lead to different effects and operate under different contextual conditions. To structure this kind of analysis we need to take into account the dynamic elements of the interactions, and determine at which applicable stage of the research process they have started and how they have evolved throughout the process.

**A comparative application of the SIAMPI framework**

This study tests the applicability of the SIAMPI framework across different contexts in the Social Sciences and Humanities. The objective is to analyze the social impact of a research initiative funded by the UK Economic Social and Research Council (ESRC) and of the research groups in Social Sciences and Humanities of the Spanish Council for Scientific Research (CSIC). The UK and Spain have different approaches to evaluation and different funding structures.

Impact assessment and the focus on research impact have long been an element in the definition and implementation of UK research policies and this is reflected in the funding policies and evaluation expertise of the ESRC. The ESRC has a well-defined, evolving impact assessment strategy implemented by an Evaluation Unit under the direction of a Research Evaluation Committee. In contrast, there is no formalized approach to impact assessment in Spain and CSIC research activities in the SSH have often been defined without a formal research project underpinning them. While the ESRC is a funding organization supporting activities in a context where project funding is a key element in defining research activities, CSIC is a performing organization supported to a large extent by core government funding (60% of total CSIC expenditure). The ESRC uses different instruments to fund research, mainly:

- “Research Centres” funding research groups over a period of 5 to 10 years. Centres are usually located in one or two universities and receive substantial funding (several million pounds) over a period of 5-10 years.
- “Research Programmes” are similar in size to “centres” but fund several research projects on the same topic under the overall organization of a Programme Director who organizes the research activity and dissemination activities. Research Programmes also last typically between 5 and 10 years.
- Response Mode projects can be submitted at any time to the Council at the initiative of the researcher. Typical projects will take place over a 1 to 3 year period, and involve a small research team. Funding levels are variable but much smaller than for Programmes and Centres (a Programme would fund several projects similar in size to a typical “Response Mode” project).

In these different contexts, impact assessments need to be conducted in a different way: while the natural subject of an ESRC assessment will be one of its investments and will therefore be clearly time-bounded; for the CSIC, the focus is on research performing units developing their activity over a long period of time, without an end date. Similarly the assessment of “Response Mode” projects will be approached differently from the study of Centres and Programmes.

In this comparative study we will first address separately the analysis of the social impact of an ESRC investment and of the CSIC activities in this field. The analysis is not structured as a single case study, but as two contrasting assessments of the social impact of research in the social sciences and humanities. For the ESRC we will analyze the social impact of a Research Centre selected for us by the ESRC. All Centres are routinely assessed for their performance and impact and it was necessary to select a Centre that had already been in existence for some time and that had not yet been subjected to an impact assessment. For CSIC, our objective was to find relevant instances of social impact and productive interactions from its research groups in the Social Sciences and Humanities.
(SSHs). We focused on 15 research group that our previous research had identified as having relevant extra-academic activities and which provided a broad coverage of the wide variety of research fields covered by CSIC in the SSHs. Details of the selection criteria all provided below in the introduction to the Spanish study. We conclude the analysis with a comparison of results in both countries and a discussion of the suitability and issues raised in this application of the SIAMPI approach.
A social impact assessment of the BRASS Centre

Introduction to the BRASS Centre

The ESRC investment selected for analysis was a “Research Centre”: the Centre for Business Relationships, Accountability, Sustainability and Society (BRASS). BRASS is located at the University of Cardiff in Wales and was set up by in 2001. ESRC-funded centres normally have a 10-year life and in some cases, may be extended for another five years. BRASS currently employs 3 Directors, 15 researchers, and 17 associate researchers from several University of Cardiff departments. It also has 15 doctoral students.

BRASS approach to research is applied and policy-oriented in nature, revolving around social problems, and drawing from different disciplines. Research activities at BRASS address policy problems and respond to research opportunities offered by new collaborations with stakeholders. A substantial part of the research activities is conducted in close contact (and often in cooperation) with policy stakeholders who are the first “users” of the research and its results. Since its inception BRASS has established evolving and increasingly complex relationships with stakeholders. The six selected projects below reflect this evolution. As we will see, many of the activities are carried out with local and regional policy bodies, but there are also contributions to national policy debates and interactions with stakeholders across the Atlantic.

BRASS research is organized into different thematic areas, most of which address social, environmental and sustainability issues. The thematic areas evolve as almost independent research areas: they have different funding sources, involve different researchers are deploy, as we will see, clearly distinct forms of interaction with stakeholders. In consultation with the BRASS Director, we selected for analysis six different projects or areas, reflecting some of the major themes of BRASS research. They are:

- Sustainable Communities
- Nanotechnology and Social Responsibility
- Micro-factories in the Automotive Sector
- Social conflicts in the Mining Industry
- Social Marketing
- Bovine Biosecurity
- Ecological Footprinting

Each area will be analyzed in turn below.

Productive interactions and instances of impact

Sustainable Communities

The project on Sustainable Communities was jointly funded by the ESRC and the Home and Communities Academy, part of the Home and Communities Agency, which is the Government’s body for national housing and regeneration. Therefore, in the language of SIAMPI, the project emerges because of a financial interaction. The project took place over one year (2007-2008) with the objective of studying the skills, training, and “knowledge communities” required to develop sustainable living. The case study was carried out in Stroud, a town in the West of England that is known for being a leading example of a “sustainable community.”

From the very beginning, the researchers actively sought the collaboration of stakeholders and saw this collaboration as crucial for the success of the study. The BRASS researchers identified as their
main stakeholder group a community of “sustainable living” activists, volunteers who organized a variety of activities like agriculture clubs and car-sharing schemes. Yet, the researchers did not know the activists and establishing the links became much more difficult than they had initially expected. The activists appeared to have neither the time nor the inclination to get involved in the project and the lead researcher spent months trying to build trust with them, living in Stroud, visiting and helping in allotments, participating in local community events, attending birthday parties, etc.

Eventually some stakeholders participated in portions of the research project; particularly in meetings and focus groups to discuss how to research sustainable living and issues related to it. This seemed to have been more productive for the researcher than for the stakeholders. The study was initially based on the belief that training was the main avenue to generate and disseminate the skills and knowledge necessary for the development of sustainable communities. A main outcome of the study, to which the stakeholders contributed in no small way, is that this is not the case: training does not emerge as a useful avenue towards the development of sustainable communities. Instead, the study found that learning-by-doing and tacit knowledge played a central role in building sustainable communities. The lead researcher, Julie Newton, told us that the stakeholders had shown her that a hands-on approach is needed to learn about sustainable communities. This interpretation of events was corroborated by Alison Parfitt, a stakeholder in one of the groups targeted by the BRASS researcher. It was the researcher who first approached the stakeholder, but their first meeting revealed to both participants that the stakeholders had little to learn from the approach initially proposed by Julie.

Eventually, the conclusions that the study reached confirmed stakeholders existing practices and assumptions and, therefore, did not change or shape their practice. In contrast, the research team derived lessons that shaped their future research practice. The main researcher, Julie Newton, concluded from her experience that, instead of going “in cold” as she had attempted in the Sustainability Communities project, she would need to spend more time getting to know the stakeholders before engaging in a research activity. In other words, the researchers now perceive personal interactions as a pre-condition for successful research.

The experience and insights gained from the project have also led to a new research focus on the role of tacit knowledge and experience in the development of sustainable communities. These aspects, as described above, can be traced to the interactions with stakeholders. Julie and Alison are now co-authoring a book chapter on a new framework for participatory action research, which they will be presenting to the Royal Geographical Society in September 2010. In fact, it was the stakeholder who proposed to engage in parallel work on the value of participatory action research, and is seeking to “brand” this approach for other areas of policy.

Alison also suggested that she is now engaging with academics “as never before”, having gained a better understanding of how to work with academics and realizing the benefits of working with researchers. She is now helping Leeds University and Bristol University to set up a Wild Lands project. Alison and Julie are also exploring the possibility of future co-bidding to the ESRC.

With these lessons learnt the researchers have worked hard to maintain and develop the contacts they had established during this study. It may seem just an anecdote, but it is relevant nonetheless, that the lead researcher sends Christmas cards to the contacts she made during the project. A more targeted effort tries to include potential users and beneficiaries in a new follow-on study – the creation of a “Food Hub.” In the course of preparing of this “Food Hub” project, the main BRASS researchers offered enticements like the creation of a website for the project, and the writing of reports, newspaper and magazine articles to attract members from sustainable communities to the project. The objective
was to engage stakeholders from the very beginning, when the project is still being prepared, and to place the stakeholders in the driving seat, defining how the new project will be undertaken.

Although, this is a case in which the researchers have learnt more from the interaction than the stakeholders, the latter have not been merely passive consumers. First, there has been some research collaboration between stakeholders and academics yielding identifiable results and further interest in future collaboration. Second, the links are strengthening and stakeholders call researchers from time to time asking for information. An informal relationship is developing from a slow start in a formal research project, and the new engagement of a stakeholder in academic research can also be considered an impact of the project.

**Nanotechnology and Social Responsibility**

The regulation of nanotechnology is a highly topical policy issue. The two researchers interviewed (Chris Groves and Lori Salter) reported many different types of interactions with different policy-related stakeholders, revolving around a set of research contracts with government departments. Especially important was a project for the UK Department of Environment, Food and Rural Affairs (DEFRA) to examine the application to the nanotechnology industries of corporate social responsibility principles (heretofore referred to as the CSR project.) The project took place between 2008 and 2009, involved two BRASS researchers (Chris Groves and Lori Salter), and triggered a broader set of interactions with stakeholders. Yet, DEFRA already knew both researchers from their previous work. For instance, Lori had written a report on the regulatory environment for the development and marketing of nanomaterials (2006) for the then Department of Business Enterprise and Regulatory Reform (DBERR). In other words an initial “indirect interaction”, established through the reading of a text, made the researchers known to the stakeholder organization, who two years later contracted their services (a financial interaction).

To assist in the development of the project for DEFRA on nanotechnology and corporate social responsibility, the two BRASS researchers set up a Steering Committee comprising representatives from the Environment Agency, the Nanotech Knowledge Co-ordinating Group, and business representatives among others. This Committee was charged with reviewing the work in progress, sending it out to external stakeholders for further review, and feeding back the input to the researchers. Once they concluded the project, the researchers presented the findings to DEFRA, the Standards Agency and the Home Office, and worked with DEFRA to disseminate the results to other interested parties, including the European Commission and the OECD.

The interactions with government agencies that the project enabled have continued after it. The personal nature of many of these interactions determines the organizations with which the researchers establish connections. When the stakeholder moves to another organization, the link also moves. For instance, one of the DEFRA officials who met the BRASS researchers during the research project moved to the Department for Business, Innovation and Skills (BIS) as the leading nanotechnology regulator. She is now consulting with Lori Salter on the content on nanotechnology regulation, which will be posted on the BIS website. Although these links may have started from a formal financial interaction, they have now become informal: they are open-ended and recurring, based on personal interactions and not mediated by a contract.

These recurring, mainly informal contacts have spread to a broader set of stakeholders. For instance, BIS has asked Chris Groves for advice on corporate social responsibility and nanotechnology and he has attended further policy meetings organized by DEFRA and BIS. A key policy officer of DEFRA, Steven Morgan, has also had several informal sessions with Lori Salter. He confirmed that Lori
Salter’s views were taken into account in DEFRA’s approach toward nanotech regulation and that BRASS provided an “invaluable” source of information.

Lori Salter and Chris Groves have established a similar informal relationship with Hilary Sutcliffe, director of a nanotech think tank, “Responsible Nano Forum”, which brings together investors, legal experts, policymakers, NGOs, businesses and academics to examine the benefits of nanotech and other related issues. Hilary Sutcliffe came to know the researchers after reading the final report for the DEFRA project. Here we note that an indirect interaction (itself the result of a financial interaction) has evolved into a personal link (a “direct interaction” in our language) involving collaboration.

The Responsible Nano Forum channels its public communication through the organization’s website (“Nano and Me”) which is being piloted and waiting for Government funding. Hilary contacts Chris and Lori frequently for information on various nanotechnology issues and both researchers have contributed to the “Nano and Me” website. Hilary has also proposed co-organizing with BRASS a conference to further disseminate the CSR report and promote discussion of its findings, particularly with the business and policy-making communities, because she felt that the report’s content could be re-packaged for a larger audience. BRASS has agreed to host the conference sometime in late 2010. Hilary also intends to work on a proposal with Chris as a follow-on to the DEFRA CSR project.

Alongside with this set of interactions stemming from the DEFRA project, the research team has engaged different stakeholder communities through other channels. Chris has volunteered written evidence to the House of Lords Committee on nanotechnology and was then invited to provide oral evidence. Lori was invited by the Royal Commission on Environmental Pollution to provide evidence. The British Standards Institute has invited Chris to write a manual on standards for corporate social responsibility. Both researchers have also produced publications aimed at stakeholders and the public. These include a UK directory of nanotechnology health and safety specialists and contributions to a report from the Royal Society and the Royal Academy of Engineering. In addition, Chris runs a “Philosopher Café” to link Cardiff University with industry to disseminate research on nanotech and social responsibility, in addition to other topics.

The stakeholders we interviewed confirmed the influence of the BRASS researchers in this field. An interviewee at DEFRA thought that the reports for the DBERR and DEFRA had been “highly useful” in setting the nanotechnology regulatory landscape. The DBERR report was a “major landmark” as it was the first in Europe that looked at nanotech regulations across the region; and identified regulatory gaps that were then addressed through European Commission regulations. The reports showed gaps in current regulations and provided information on company behaviour and corporate social responsibility policies that would help shape the nanotechnology regulation strategy that BIS was developing.

The links the researchers have established are not limited to the public sector; other collaborations have been established with private firms and consultants. The researchers are trying to raise further funding for academic research together with a consultant with whom they are also collaborating in drafting a code of conduct for small and medium-size nanotechnology firms, and organizing seminars with industry and policy-makers. The DEFRA project also helped the researchers establish links with a broad range of individuals who had been interviewed for the project; for instance, an industrialist has helped the researchers adapt their research design and identify areas for future research and has invited them to corporate seminars. An interaction has therefore emerged in which stakeholders are shaping the research agenda and, at the same time, sharing in the research activities and results.
Micro-factory Retailing in the Automotive Industry

This project started as a BRASS-funded area of research to study an alternative to the current high-volume and unsustainable model of car production. From its very beginning, the research team conducted its work in an applied context. The lead researchers, Paul Nieuwenhius and Peter Wells, had worked in the car industry where they developed their ideas for micro-factory car production, involving both new organizational designs and new technologies amenable to micro-factory production (aluminium body frames, modular designs, ...). They continued to pursue these interests from BRASS, carrying out research that responded directly to specific applied problems. The variety of interactions we will discuss below originated in contacts the researchers had already established before they joined BRASS but were further developed as they actively pursued new potential partners connected with the car industry. Not content with their pre-existing networks, the BRASS researchers tried to identify new potential contacts by, for instance, scanning news feeds and the popular and specialised press to obtain details of individuals or firms involved in micro-factory developments in the car industry. The outcome was the establishment of a wide variety of interactions with stakeholders:

- Formal and financial interactions through consultancy projects for the auto industry for firms including Saab, Ford Europe, Volvo, Toyota, Morgan, Gordon Murray Design, Axon, and organizations like Greenpeace. Areas of consultancy included small car design and the development of environmental ratings for cars.
- Some of these companies (Riversimple, Gordon Murray Design, ...) also seek advice and views on micro-factory issues informally, and have established an open-ended direct collaboration with the researchers.
- Through the writing of regular features and opinion pieces for different magazines and web pages targeted to professionals and the general public (Automotive World, Sewells Automotive Marketing Review, Automotive Environment Analyst). They also provide expert opinions on the auto industry for the magazine Automotive World, and have written books targeted to professional audiences (“Green Car Guide”).
- Through their contribution to Advisory Boards of firms like Gordon Murray Design, (a small car design firm), where they advise on micro-factory retailing business models and operations.
- Through seminars on micro-factories organized for firms such as John Lewis, Harley Davidson, and Volkswagen, and organizations like the OECD.
- Advising public sector organizations, both domestic (Welsh Regional Development Agency on foreign direct investment in the automotive industry) and foreign (Chinese State Planning Bureau on sustainability strategies for the Chinese auto industry).
- Through informal regular meetings with officials from DEFRA, BERR (Business, Enterprise and Regulatory Reform) and the Welsh Assembly Government.
- Through informal contacts with contacts from the car industry. For instance a chance encounter with a senior General Motors executive at a conference, led to discussions on micro-factory retailing. The researchers believe that General Motors is now adopting some of the ideas on smaller-scale production developed by the BRASS team.

We find again instances in which one type of interaction led to another. For instance, the advice provided to Chinese authorities stems from an official in the Chinese State Planning Bureau who read the “Green Car Guide”. During discussions between the Chinese Government and UNIDO on sustainability in the car industry, the State Planning Bureau suggested bringing one of the Guide authors, Paul Nieuwenhius, into the discussions. This involvement eventually led to Paul advising the Chinese directly.
Similarly, an initial indirect interaction (through a publication) led to consultancy contracts and further collaboration. The Managing Director of Gordon Murray Designs (GMD), knew of Peter Wells and Paul Nieuwenhius from their work and writings on the auto industry and, particularly, on the environmental impact of cars and their manufacturing processes. He had found their publications, particularly, *The Global Automotive Industry: A Guide for the Perplexed*, published in 2001, very useful, and used their data and documentation as a “sanity check,” for instance, for platform strategies, information on supply chains and potential competitors in the small car market. It was the stakeholder who approached the researchers for further help. The interactions are evolving: GMD is hoping to fund the BRASS team to carry out a project focusing on different materials for cars. Further, a GMD researcher is currently working with the BRASS researchers on an informal basis.

The CEO of Riversimple, a small company aiming to produce hydrogen fuel cell cars, met Peter Wells through a personal contact; he had also read, among other publications, his book, *The Death of Motoring: Car Making and Automobility in the 21st Century* (published 1997), which helped him think and refine his views on microfactories. The relationship with the BRASS team is mainly informal, with the firm seeking advice on how to communicate issues and problems related to the auto industry and using them as a “sounding board.”

In these interactions, the researchers typically acted (and continue to do so) as advisors to different stakeholders both in industry and in government. Often the advice can validate or help develop stakeholders’ practice but may not determine, by itself, a specific action: it was contributory in nature. In some cases, research results have been used to support arguments: GMD often refers to BRASS research on the advantages of microfactory retailing and on the environmental impact of cars in presentations to potential investors; and Peter Wells has given support to Riversimple in the preparation of seminar presentations.

In other cases, the research carried out is aligned with the current governmental goals, but most of its impact is likely to be longer term; the specific links between the interactions we are observing and the broad range of potential social impacts are still difficult to establish. We are witnessing a mesh of formal and informal collaborations in which academics are providing support for the development of specific business models in emerging areas, many of which have not yet yielded identifiable impacts. The researchers, however, have attempted to provide examples of firms and organizations who have developed policies and activities in line with their recommendations. In some cases the link can be direct; for instance, the Chinese State Planning Bureau implemented some of the recommendations made by Paul Nieuwenhius to encourage the sale of small cars and charge higher taxes for SUVs. The Welsh Assembly Government has implemented a policy in support of low carbon vehicles and micro-factory retailing that is attracting firms like Connaught (a producer of hybrid power train systems) and Naro (small tilting vehicles), to relocate to Wales from Northamptonshire and the Midlands respectively.

To an extent, impacts within small firms may be easier to trace. For instance, specific individuals in smaller companies have the capacity to take decisions that in large companies would entail complex and time-consuming processes. Research take-up by smaller firms may thus be clearer. For instance, a shipper of used cars consulted Peter Wells about how to improve the business, but ended selling his ships instead of continuing his business after Peter argued the business was unsustainable. The

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2 This field of research has the potential for substantial social and economic impact. The move towards micro-factories in car manufacturing, the associated use of alternative materials for the body frame, and the use of alternative sources of energy could help reduce carbon emissions while preserving the automotive industry in the UK.
influence of the researcher was direct. For large firms, it is difficult to identify which actor has been influential in the adoption of a policy or the use of research results.

**Social Conflicts in the Mining Industry in Argentina**

As in other BRASS projects, this is an eminently applied project in which the researchers aim to make a difference in social practice. Before their involvement in this project, the researcher had already a record of working with policy makers, and it is through this policy work that the initial contact that eventually led to this BRASS project took place. The lead researcher, Diego Vazquez, had carried out a study for the Welsh Assembly to develop a sustainability model; it was during a presentation of this model in a conference that a chance encounter took place with the person who eventually became the main stakeholder in this BRASS project (Prof. Diana Mutti). The first interaction is therefore indirect and the next step was helped by a serendipitous social network connection between Diana and Diego: Diego’s brother was Diana’s ex-doctoral student. Through Diego’s brother, Diana came to know Diego’s work in more detail and developed an interest in his model and BRASS research on extractive industries and corporate social responsibility. Eventually Diana funded, through the University of Buenos Aires, the BRASS project on “Social conflicts in mining in Argentina” (2007-2009), and became its main stakeholder.

Diana Mutti is a professor at the University of Buenos Aires and is deeply involved in the policy and politics of mining in Argentina. She is a leading geologist and is well known by Argentine policymakers, the mining industry and activist groups (NGOs) against mining. Diana is an academic but not a social scientist, and her main interest in this project was in the application of social science to the resolution of mining conflicts in Argentina, with which she was familiar. Diana’s role in this project is therefore multiple: she is a stakeholder (for her involvement and interests in the politics of mining in Argentina), a client (as a representative of the organization funding the research), and a researcher (as she collaborated with the Cardiff-based team).

As a geologist, Diana was concerned that mining was getting “bad press” and her geology students were “ashamed to be geologists.” She explained that her interest in corporate and social responsibility (CSR) in mining is underpinned by the different interests of Argentinean stakeholders. These stakeholders include the national, provincial and local governments; the domestic and international mining companies, community leaders (mining and media unions), churches, NGOs, consultancies, and universities. These stakeholders, in large part, control the information produced and its dissemination; for instance, some local governments have funded university research in support of mining with little consideration of the community effects. Churches and NGOs, on the other hand, were concerned with the impact on employees and the environment.

The collaboration with Cardiff largely stemmed from these conflicts and Diana’s view was that she needed social science research to understand the roots of the conflict. She helped design the research agenda, which was therefore responding to a very specific policy problem.

The links with other stakeholders were established mainly through Diana’s direct personal contacts. The Cardiff researchers did not have any pre-existing contacts with the relevant Argentine stakeholder groups (mainly mining companies, and activist groups opposing mining in their regions). It was through the research activity and the need to access stakeholders for research purposes that these linkages developed, although in some cases with serious difficulties.

Activists were very reluctant and difficult to engage. The BRASS study looked at open-mining in an Argentinean region where mining had been controlled domestically and local activists had successfully
mobilized international support against mining there, particularly against the entry of multinational companies. These activists regarded the research team with suspicion, a local citizen’s movement branded one member of the research team (Natalia Yakoveleva) as a mining proponent and Cardiff University as a “liberal university.” Local groups initially refused to grant any interviews and access to the research team.

It was, however, relatively easy to establish connections with industry: the reputation of Diana Mutti helped open the doors; Diana was known to the industry especially as her research had discovered two gold mines in Argentina. Mining companies helped the researchers by offering hospitality and transport and also offered funding, although the latter was declined.

The way in which the researchers engaged the activist groups was also serendipitous. The best friend of one of the researchers had a sister who belonged to the activist group. The researchers persuaded the friend to persuade her sister and she finally agreed to meet with the team at midnight in a secret location to hear about the research project. She was then convinced her group members that the project was not hostage to any stakeholder’s interest. The BRASS team finally was granted access to some group members for interviews. Further, in December 2009 Diego organized a seminar on stakeholder engagement with the participation of a Norwegian specialist in conflict resolution, and representatives from national, regional and local governments, and from the mining industry. This was apparently well-received and stimulated much discussion among the participants.

Given the initial difficulties in establishing links with activists, it is interesting to note that the initial caution has given way to cooperative ventures. Diego and Natalia have collaborated in a project proposal with the activist group to look at the impact of uranium mining on indigenous livelihoods. There were also links with national and regional governments. Sometimes politicians tried to influence the direction of the research; for instance, the regional and local governments wanted a survey on the possibility of building a railway in the region in return for access to information and interviews. Diana eventually did the survey paid by the University.

In addition to the personal interactions developed during the course of the study, the researchers contributed to several professional publications like *Trends and uncertainties in the mining industry* published by Oxford Analytica.

The final report was not yet completed by the time we carried out the interviews (January 2010), but Diana Mutti was hoping to use the results to advise governments, the mining industry and NGOs. Yet, some impacts are, according to the interviewees, already apparent. The research had played a mediating role bringing positions that were diametrically opposed to a position in which there is scope for discussion and some agreements. On the one hand, activists groups now accept open-pit mining in some inhabited areas, a departure from the original position against all mining that had been very influential in legislation passed by the Argentine Senate in 2001 against open-pit mining. On the other hand, mining companies have accepted that there are areas unsuitable for exploration, while initially they explored wherever they thought there was potential.

Further, other disciplines, such as mechanical engineering and chemistry now find that incorporating social science researchers into their projects can be useful. Academics in these fields have begun to approach Diana for the results of the joint BRASS project, and are seeking ways to integrate social research into their own research.

The interviewees continue to play an intermediating role; for instance, Diana checked the validity of geological data for a local community group in Andalaga, who was very worried about the
environmental impact of a new mining project. The BRASS researchers are also helping Diana to develop mechanisms to improve environmental safety in the mining industry for another project.

**Social Marketing**

Social marketing was not among the issues initially proposed by BRASS; it has become part of its research activities as a direct consequence of the interest shown by stakeholders in the application of social marketing techniques to their specific needs. The interactions evolved in different ways and varied across stakeholders. For instance, Julie Barrat, Director of the Chartered Institute of Environmental Health (CIEH) for Wales, was initially aware of Ken Peattie’s (BRASS Director) previous work on skin cancer (again, an indirect interaction through text) and then invited him to present a paper at a conference. The paper Ken presented was on social marketing and since then the relationship has strengthened into a direct interaction. CIEH sees BRASS as “the first port of call on social marketing”, Julie has attended events on social marketing organized by BRASS, and attended social marketing conferences with Ken Peattie. Further, according to Julie Barrat, CIEH has introduced a policy stream on social marketing. As CIEH members are mainly regulators, social marketing is being advocated as an alternative approach to regulation, instead of “hard core” enforcement. In other words, social marketing techniques are now applied to implement regulatory measures, and this is a direct consequence of the interactions with BRASS. To support this policy, CIEH now conducts training in social marketing. CIEH has also adopted social marketing as part of its member enrolment policies. Further, it has set up a Healthy Options Award Scheme implemented by the Welsh Food Standards Agency and Food Environmental Agency using also social marketing techniques to persuade food companies to sell healthy prepared meals and to educate consumers to the importance of healthy meals.

In another example of interaction, direct personal contacts have developed into financial interactions: contracts to develop specific social marketing strategies. Sue Peattie is working with the Community Safety Department, South Wales Fire Department on a project to study the use social marketing methods to prevent grass fires, and implement its findings throughout the Fire Department. The origins of this study lie in social networks: the South Wales Fire Department had worked regularly with Alex Consulting, a company that occasionally subcontracted work to Sue Peattie. Through this relationship, Alex Consulting came to learn about social marketing, and when the Fire Department commissioned a project to investigate what could be done to inform the public about grass fires, Alex Consultancy brought Sue into the project; then Sue introduced the notion of social marketing to the Fire Department. This was the first time that the Community Safety Department had collaborated with academics and the project involved regular meetings with BRASS. Neil Brown, Safety Manager at South Wales Fire Department and project lead at the Department, stated that he had learnt much about social marketing, something which was previously totally unknown to the Department.

The interaction has led to efforts by the Fire Department to apply BRASS recommendations. BRASS suggested a social marketing strategy to reduce the incidence of brush fires. This was implemented by the Welsh fire services and led to another contract to BRASS to evaluate the impact of the initiative. The stakeholder from the Fire Department expects the project to provide additional insights into causes of grass fires and the processes to tackle them.

Neil Brown estimates that there will be a “massive impact on the way that other departments are using social marketing knowledge.” Some examples of departments currently adopting social marketing principles are the PR and Operations departments of the Fire Department. Neil thinks that the whole Fire Department will eventually adopt social marketing principles. Also, as a consequence of this collaboration, the Welsh police has now contacted BRASS to develop social marketing strategies.
In this example, as with the case on extractive industries and social responsibility, we find an increasingly complex web of collaboration emerging from a serendipitous encounter: the initial Fire Department stakeholder learnt about social marketing through a passing reference that the BRASS director made to the concept during a keynote speech on business ethics organized by the Chartered Institute of Marketing. As interest in social marketing grows, the area gains presence within the portfolio of BRASS activities.

**Biosecurity Bovine**

BRASS has carried out research on veterinary issues supported by small independent grants and contracts from the ESRC (“Biosecurity Bovine” and “Styles of Veterinary Regulation”, both completed) and DEFRA (a study on farmers’ confidence in bovine TB vaccination, just started). These projects build on a track record of policy engagement by the project researchers. For instance, before these projects were launched Gareth Enticott was seconded for 18 months from November 2005 to the Welsh Assembly after he had presented evidence to the Assembly on animal disease management. At the Assembly he contributed to consultation exercises and wrote recommendations on social research strategies in disease management and the specifications and the final report for an evaluation project on “Biosecurity Intensive Treatment Area”.

The relationship with the Welsh Assembly continued after his secondment. During the course of conducting his research there developed mutually reinforcing links with DEFRA and the Welsh Assembly Government. For instance, Gareth Enticott was asked to sit on DEFRA meetings by the Welsh Assembly Government, and has also presented the results of the ESRC-funded project on “Biosecurity Bovine” to DEFRA. Gareth continues to sit on the Welsh Assembly Policy Group. The researchers also collaborate with other stakeholders like veterinaries through a “Vets and Social Scientists Collaboratory” and the provision of informal advice to individual vets, farmers, farmers’ groups and groups like the British Cow Veterinary Association, and the Royal College of Veterinary Surgeons. Gareth has also given evidence to the Environment Food and Rural Affairs Committee (EFRAcom) at Westminster; this evidence was based on the results of the study on “Biosecurity Intensive Treatment Area” for the Welsh Assembly (see above).

The researchers used these contacts and links for their studies, but stated that stakeholders are not influencing their research agendas. Instead, they provided several examples of uptake of their contributions to the policy process. For instance, their recommendations to EFRAcom were reflected in its report and led DEFRA to take measures to improve the provision of information on biosecurity to farmers. Other research was used by the Welsh regional government as evidence to support a change in its communication practice with farmers (increasing the regularity of meetings), the research on TB has informed DEFRA and Welsh Assembly on policies to eradicate TB, and an assessment of the viability of vaccinating every cow in Wales was quoted by the responsible Minister to support this policy. Finally, on their recommendation, local Welsh vets continue to be paid to assess how Welsh farmers are managing animal health, a policy that the Welsh Assembly Government was considering to terminate.

To sum up, this area of BRASS research is primarily based on a close interaction with two main groups of policy makers: the Welsh Assembly and DEFRA. The research activities and projects are closely linked with advisory and consultancy tasks carried out for these groups of stakeholders and are clearly oriented to the production of policy relevant results. The way in which these interactions become productive is typical of the use of research results in public policy environments: they
contribute to policy debates, sometimes are used to support and justify new policies, and in a few cases they have arguably led to specific policy measures; for instance, in the field of animal health.

**Ecological Footprinting**

The core activity in this area is a research project on “Ecological Footprinting: Footprint for Wales Capital Cities” funded by a group of stakeholders: the Welsh Assembly Government, local Councils in North and South Wales (particularly Cardiff Council), and Biffaward, a large waste management company in Wales. The project emerged from a policy concern: although the Welsh Assembly Government was developing a footprinting policy, policy makers did not know how to measure the carbon footprint.

A previous small project that had resulted from discussions between WWF and the Welsh Environment Minister had not yielded the expected results. This led to the commissioning of this larger study involving several stakeholders and research organizations (the Stockholm Environment Institute of York University and WWF Cumry in addition to BRASS).

This large project was accompanied by smaller studies also contracted by stakeholders:

- For Cardiff Council on the ecological footprint of Cardiff.
- For UK Sport (sub-contracted from Sheffield Hallam) to test the footprint measurement method used in sporting events.
- For DEFRA on sustainable consumption and production.
- For the Welsh Assembly Government on environmental indicators.
- For the Isle of Wight Council a study of the carbon footprint of the Isle of Wight Festival.

In addition, the researchers developed personal interactions with other stakeholders. For instance, Andrea Collins sat on the Olympics bid team to provide advice on the systematic monitoring of carbon footprints. Another researcher, Andrew Flynn, developed pre-existing personal interactions into new ones. Andrew was part of the Glamorgan Group, a small lobbying group that introduced him to the Welsh Assembly Government; when a member of the Glamorgan Group became Welsh Environment Minister, he facilitated Andrew’s access to the Welsh Assembly and, later, to Cardiff Council. Andrew continues to keep constant contact with these stakeholders through seminars, informal discussions and the informal provision of information and advice. This relationship led to a survey of the ecological footprinting created from the FA Cup Final held in Cardiff. This study, carried out during the same time as the Ecological Footprinting project, was done for free, responding to the Council’s interest in knowing the ecological footprint generated from sporting events. After the study the Council continued to refer to Andrew to consult on footprinting issues and both researchers continually revisit the Council to see how they are using the ecological data it collects.

In short, this area of BRASS research focuses on the development and application of a set of measurement techniques for a variety of, mainly public sector, customers. Financial interactions are central. As the research is funded by public organizations with a specific interest in its results, it is to be expected that the financial interaction will be “productive”: it is likely to lead to initiatives to use and apply the research results.

There is ample evidence of stakeholder efforts to contribute to the research and apply its results. Most significant is the one-year secondment of a senior official, Alan Netherwood, from Cardiff Council to BRASS to work on the Ecological Footprinting project. According to the researchers, this secondment was key to the successful production of ecological data and to the recognition of its importance. The links that led to the secondment can be traced far back: Alan had known Andrew Flynn from the latter’s work at the start of the decade for the Welsh Assembly Government on the implementation of a footprint duty. They also continued after the project: Alan is now lecturing at Cardiff University and is
an Honorary Research Fellow at the Regional and City Planning Department, where he has, for instance, supported the BRASS lecturers with ideas for courses on sustainability.

Furthermore, the Cardiff City Council has contributed to the dissemination of BRASS work, producing a CD-ROM on ecological footprinting including several BRASS reports, publishing newsletters on the topic, and inviting BRASS researchers to policy meetings. Apart from funding studies, assisting in the production of the research and disseminating results, the public bodies involved have also taken policy decisions directly related with the research. The collection of environmental indicators, including ecological footprinting, is now Welsh Assembly Government Policy. Part of the Ecological Footprinting project involved a survey on the sustainability of national parks, which showed the footprints of park visitors. The Welsh Assembly Government and local councils have set up a fund to continue gathering footprint data for national parks.

Alan Netherwood is also working to disseminate the footprinting techniques and results among local and regional authorities. In 2009, he chaired the Local Government Association, comprised of 25 local councils, and used the findings of the Ecological Footprinting project to illustrate the impacts of footprinting on food security and sustainability. In February 2010 Alan conducted a workshop on the tools for measuring footprints for the Welsh Assembly Government. Yet, although some councils, like Cardiff, have adopted the tool, its take-up is still minimal because, according to Alan, the “tool is innovative and adoption requires users’ time to learn and adopt.” In other words, there is a close collaboration between academics and “policy entrepreneurs” like Alan Netherwood, with the objective of generalizing the use of footprinting measurement tools among local and regional authorities. Although take-up is still limited, Alan argues the footprint research has raised awareness and has contributed to the development of policies to reduce ecological footprints.

**Explaining impact through productive interactions**

The above study of the social impacts of the BRASS Centre research has focused on the processes by which research and stakeholder communities communicate and influence each other. They also show how social impacts can be generated through a wide range of productive interactions. From the above descriptions we can identify several traits of the ways in which such interactions have emerged.

**Variety and decentralization** - The different BRASS Centre projects we have studied display different modes of interaction. Beyond the common problem-oriented approach of all the BRASS projects, the way in which they engaged stakeholder communities varied from project to project. There is no dominant model of interaction although the majority of links were with regional and local actors involved in public policy. The variety of interactions reflects a decentralized approach by Centre management with many different, autonomous channels of interaction.

**Adaptation to stakeholder demands** – BRASS research has often adapted to or identified the research needs of potential research beneficiaries. Often, this is expressed through research and consultancy contracts (as in the car microfactories, social marketing and ecological footprinting fields). Other times BRASS researchers have engaged without economic compensation in projects addressing “customer” problems (in ecological footprinting generated by sporting events, for instance) or have modified their research agenda to adapt to the applied circumstances of their research (for example, in the case of sustainable communities).

**Importance of new interactions** – Often, the interactions we found had emerged through activities carried out by the Centre itself; that is, they were not traceable to interaction preceding the initiative but were the direct result of efforts conducted by the BRASS Centre researchers. For instance,
research projects on sustainable communities and social marketing sought and found “new” stakeholders with whom to collaborate, and established new collaborative networks with them.

The type of interactions evolve – Within a single project we typically found different types of interactions, and often one type of interaction gave way to another. In several cases, stakeholders got interested in BRASS research through attending lectures given by BRASS members or knew about the researchers through their written work. It is from this initial indirect interaction that further personal contacts (direct interactions) follow and, eventually, the stakeholder funds research activities (financial interactions). Interactions that had started serendipitously eventually evolved into formal arrangements, as in the case of the social marketing project; in other cases close interactions with policy makers that had initially revolved around contracted policy research studies, had evolved into a longer-lasting informal relationship based on personal links (as in the research on nanotechnology).

Fuzzy stakeholder boundaries – We identified some fluidity in the roles of academic and “stakeholder” or practitioner communities. Sometimes the researchers came from an applied background as in the case of the automotive micro-factories. In another a policy maker was seconded to the research team and since then he has combined work at the University with consultancy tasks, thus straddling both areas. Finally, in the mining project, an academic was identified as client/stakeholder as she was the conduit for the funding and posed policy problems for BRASS researchers to study. That individuals cross the boundary between academia and the “applied world” suggests that the research is problem-led and therefore policy relevant, and increases the opportunities for the research results to find practical applications. Yet, the channel for such application is no longer the “interaction”, which implicitly assumes clearly distinct research and user communities, but individual mobility, which therefore suggests that our approach will need to consider individual mobility as well as interaction mechanisms.

Impact as contribution to policy processes – The fields of research of the BRASS Centre are intimately linked to public policy. Even in the areas where contributions were made to the development of private industrial ventures (as in the car microfactories research), BRASS research has helped firms make policy arguments, confirm their business models and strengthen a public policy rationale in support of the venture. In this context, the identifiable social “impact” of the research occurs through contributions to the policy process and, occasionally, changes in this same policy process. For instance, in the Social Conflicts in the Mining Industry in Argentina project, researchers and stakeholders argued that the project had been able to bridge groups that had not, until then, shared any common ground: the impact of this study was on the policy and political processes surrounding the Argentinean mining industry.

The fledgling use of footprinting indicators by Welsh regional and local authorities provides a different example of a change in the policy process: the indicators emerge as a new tool in the definition of a wide range of policies and through their use environmental considerations can be expected to gain ground when designing the delivery of public services. It is often difficult, however, to link specific social changes or improvements in well-being to the contributions that a centre like BRASS can make to the policy process. Occasionally, as in the case of social marketing and bovine security, a social impact can be identified (like a reduction in grass fires and improvement in animal health management) and linked directly to the research; yet, these are more the exception than the rule. Contributions to the policy process can be identified but it is often too early and the process too complex to link these changes to changes in social conditions.
An impact assessment of Social Sciences and Humanities at CSIC

Introduction: Research in Social Sciences and Humanities at CSIC

The Consejo Superior de Investigaciones Científicas (CSIC) is the largest research organization in Spain. It employs more than 6000 researchers distributed among some 125 institutes. The Social Sciences and Humanities constitute only a small part of this capacity, accounting for some 10% of total CSIC employees, and including more than 300 tenured researchers and some 285 doctoral and contracted researchers working in 17 research institutes.

Although the research institutes constitute the administrative units within CSIC, in practice an institute can be involved in research in many different areas and may hold several research groups operating quite independently from each other. We identified 86 research groups in the humanities and 33 in the social sciences. This fragmentation (many groups have fewer than 4 researchers) can be attributed to two main traits.

First, tenured researchers constitute the core of the organization and enjoy ample freedom in the selection of their research topics and strategies. Second, in many branches of the Social Sciences and Humanities there is no need for large infrastructures to support research work. In the absence of economic pressures and constraints, tenured researchers feel free to pursue their own academic interests, often with a very small group of collaborators including a few doctoral and postdoctoral researchers.

Although these research groups have recently been formally merged into a smaller number of “research lines” within the institutes, they remain in practice the informal organizational unit for research activity and are still recognized as an entity by other CSIC colleagues. Our basic unit of analysis is therefore the “research group” defined as a team of researchers working on a common research area.

Our approach: selecting research groups

Our study focuses on 14 out of the 97 research groups we have been able to identify. The number of groups selected is determined by the resources available to conduct the study, but was based on a comprehensive study of the research exploitation activities and needs of all 97 groups conducted by part of our research team between 2005 and 2007. During this study we visited all research groups and gained an understanding of their research breadth and the extent of their social engagement activities. We have used this knowledge to select a subset of groups that (1) were likely to have engaged in productive interactions and that (2) would cover, within the resources available for this pilot, as broad a range as possible of the different types of research conducted by CSIC in the Social Sciences, and several cases from the Humanities (musicology, archaeology, linguistics, philosophy,…).

The first point is important; our sample is not representative of the total population of CSIC researchers in the Social Sciences and the Humanities; the aggregate figures we present below, for instance, on the type and length of interactions are applicable only to a set of groups that we selected because we had indications that were actively involved in interactions with stakeholders. In fact, all but one of the interviewees, stated that they had applied in a non-academic context knowledge or skills developed in academic research, and the majority tried to follow the impact of their research on society.
In total we analyzed the following 14 groups in the following fields (in the Annex we present the full lists of interviewees):

- Musicology (Music)
- Philosophy after the Holocaust (Philosophy)
- Spanish theatre (Theatre)
- Archaeology and heritage (Archaeology)
- Linguistic geography and sociology (Linguistics)
- Study of Middle East manuscripts, papyrology (Manuscripts)
- Iberian Jewish culture (Jewish Culture)
- American studies (American Studies)
- Contemporary international relations (International Relations)
- Economic geography and urban development (Geography)
- Social studies on immigration (Immigration)
- Demography, ageing population (Demography)
- Scientometrics, knowledge production and transfer in health and biotechnology (Scientometrics)
- Heritage, memory and identity (Identity)

The academic interviewees were group leaders and were all very experienced having worked at CSIC for many years. Although the interviewees referred to their own personal experiences, these were closely associated with the characteristics of the groups they were leading; as we have noted above these tended to be very small and their work typically revolved around the research and contacts of the group leader. The interviewees were all tenured researchers (civil servants), the majority of whom had spent more than 20 years with CSIC and who had developed a stable line of research. In this context, specific research projects are not, in the main, influential in defining research activities neither do they provide the framework under which research is structured.

The research groups studied were located across Spain (Barcelona, Santiago de Compostela, Madrid,…), but several were placed in the newly created “Centro de Ciencias Humanas y Sociales” (Social Sciences and the Humanities) in Madrid, which brings under a single roof all the institutes that had been until then working from a myriad of different locations in Madrid. The firms and stakeholders interviewed were nominated by the researchers and they were typically located in the vicinity of the institute. These included large and small firms, foundations, public sector managers, and monasteries.

**Productive interactions**

**Long-term stable interactions**

Despite their long tenures at CSIC, many of the researchers interviewed (64%) had developed their links with stakeholders before they joined CSIC, suggesting that job stability was accompanied by stable, long-term links with stakeholders. Similarly, all stakeholders interviewed had known CSIC for a long time, the shorter period being 7 years and the longest over 30 (several stakeholder respondents stated that they had “always” known CSIC or had known it since they were “students”). The individual researchers with whom links had been established had also been known to the stakeholders, either directly or through their written work, for long periods of time: in all cases but one for more than 5 years, and in another case for up to 27 years. For instance, since he joined the world of theatre the Director of the National Classical Theatre Company knew the scientific work of the CSIC Theatre group researcher with whom later he established a personal connection. This evolution, moving from simple awareness of the scientific activities of the researchers to the establishment of an open-ended collaborative interaction occurred in other cases, as for instance the Road Safety prosecutor links with
the Philosophy group. In this case, the stakeholder first had known CSIC in general terms and the specific individual he contacted for many years. The researcher was eventually invited to workshops, and from then, the stakeholder and the researcher began to collaborate in specific projects.

**Stakeholder diversity**

The diversity of areas in which the groups we studied operate leads to a broad variety of users and potential beneficiaries of the research and capacities generated by these groups. Groups working in activities related with the performing arts (Theatre and Music) had direct links with research users that were themselves performers or directly related with the performers (production companies, music producers, set designers, lighting specialists, clothing designers, scriptwriters,... ). However, the eventual final beneficiaries of these activities are the viewers and listeners among the general public. Interested communities are also beneficiaries of the dissemination and cultural activities undertaken by groups like the Jewish Culture group in collaboration with associations (Casa Sefarad) who act as intermediaries. In all these cultural fields, researchers and performers were aware of the importance of the diffusion of their activities and outputs to society and of the importance that the media had in this process.

The role of intermediaries is also clear in other contexts. The direct client for some of the work of the Scientometrics group is a Foundation (Genoma España), which distributes the results of the research to different actors in the relevant policy communities (officials at the Ministry of Science and Innovation, the National Statistics Institute, industrial associations, etc.), and conveys to the researchers requirements from these stakeholders.

The category of beneficiaries can be even broader; for instance, the work that the Philosophy group carries out in the field of road safety has as a potential beneficiary the whole community of road users and associated organizations such as insurance companies. Similarly the assistance provided by the Linguistics group to the forensic laboratory of the police (immediate user, more below) has a potentially very broad set of beneficiaries, arguably extending to the whole society.

The distinction between client and beneficiary cannot be drawn for some cases where there is a direct relationship in which the research group provides services (paid or unpaid) directly to a stakeholder who can be considered the main user and beneficiary of these services. This was the case of construction engineering firms engaging the Archaeology research group to carry out archaeological impact assessment audits (see below).

**Informality**

Most of the interactions we identified revolved around personal, long-lasting, and open-ended interactions conducted, at least partly, in the absence of any formal agreement or contract. Only in 39% of the cases studied did the partners enter into formal contracts. Formal agreements were more common in the social sciences and less in the humanities, where the interaction usually required only the personal effort of the researcher. As the salaries of tenured researchers are already covered by the State, this type of interactions did not incur additional costs and therefore the participants did not think they required additional payments. Even some long term inter-organisational links have been carried out without any formal contract or agreement. For instance, the Jewish Culture group long-term collaboration with the Casa Sefarad was not underpinned by any formal agreement, although CSIC’s President was a member of the Casa Sefarad governing board and the group representatives stated they were planning to sign a formal agreement.
Nevertheless, in some cases commercial contracts have structured the relationship: the *Scientometrics* group has held a string of contracts with the Foundations “Genoma España”, and the latter stated that the links would be stronger if they had more financial resources. In some cases, however, the type of interaction was not amenable to contractual links; for instance, the National Police laboratory of forensic acoustics would ask researchers at the *Philology* group for their opinion on specific recordings that they would be analyzing in the course of an investigation. These were short question, often seeking a second opinion, and were needed, and offered almost immediately. This type of very small, repeated and urgent contributions could not be covered, the stakeholder argued, through any formal contractual tool. Sometimes the researcher would participate in seminars organized by the police also on an ad-hoc basis.

The relations between the *music* group and the record producer were kept informal mainly because the small-scale of the operation and the lack of resources. The record producer did not operate as a standard, market-oriented commercial concern, but rather depended on public-sector subsidies for the publication of the records. In this context financial resources were extremely scarce, and the collaboration was fuelled by the converging interests of both parties rather than by financial incentives.

There are cases, however, where formal agreements (“convenios”) have been drafted in the absence of any financial transaction. For instance the *Manuscripts* group signed a formal agreement with the Montserrat Abbey, the Universitat Pompeu Fabra, and the “Compañía de Jesús” (the Jesuit order) under which the academic organizations (the CSIC group and the University) would restore, catalogue, digitize, and preserve manuscript collections held by the religious orders. This agreement set up an exchange in-kind: the researchers obtained access to rare research materials and were offered free lodging at the monasteries holding the collections, and the religious orders had their collections catalogued, preserved, and analysed. The religious orders also contributed to the analysis, thus establishing a research collaboration rather than a merely “service-based” interaction.

The use of “agreements” is also very common when there are financial interactions among different organizations in the public sector. The “agreement” is a tool that allows two public sectors organizations to collaborate in a project and exchange financial resources. In other words, a public sector organization that would need to issue a services or research contract for public tendering if it was to work with private sector organizations can simply sign an agreement with a public sector research organization and have this work conducted as a collaboration. Although the rules regulating the applications of “agreements” have tightened, the agreements can still be used as the basis for financial interactions between two or more public sector organizations.

Agreements involving financial exchanges were signed, for instance, by:

- the *International Relations* group and the “Casa Asia” a public consortium bringing together several public sector institutions (Ministry of Foreign Affairs, Catalan Regional Government, and the Barcelona and Madrid town councils). The “Casa Asia” task was to supply information and organize activities to improve the knowledge of Asian countries among Spanish citizens and organizations, and support the establishment of links between Spain and Asia. The “agreement” is extended every year;
- the collaboration between the *Immigration* group and the Directorate for Immigration Policy at the Andalusian regional government is also structured through a string of “agreements”;
- the archaeology service of the Galician regional government and the *Archaeology* group organized their links through agreements, but after the agreements expired the frequency of the links diminished.
This last case suggests that the “agreement”, even when it is underwritten by a financial arrangement, provides a more open-ended way of structuring collaboration. The agreement will detail the objective of the agreement, some tasks and the financial transactions it involves, but it will not have the details of a consultancy or a research contract. The Galician regional government interviewee attributed the decline in the level of interaction with the research group, which he regretted, to the end of the agreement and its substitution for more narrowly conceived and shorter-term contracts. Although a formal tool, the agreement can support the type of open-ended interactions characteristic of informal links.

**Combining different types of interaction**

It was common for research groups to be involved in different types of interaction sometimes with the same partners. The Archaeology group (the Laboratorio del Patrimonio – LaPa) provided civil engineering and construction firms with the archaeological impact audits required by law before any major civil engineering work can be started. In this case, and despite the general prevalence of informal links, financial interactions outweighed the rest. A client for these services, Endesa CyR (a division of a large electricity generator and distributor developing and exploiting wind farms) has entered into more than 20 contracts with the Archaeology group. The firm stated that personal interactions had developed beyond the specific contractual links; Endesa and LaPa have for instance collaborated in the restoration of a site in Castros de O Neixon (Galicia) and in the co-production of a guide for the site.

The Archaeology group has also collaborated with a SME working in the field of archaeological impact audits and in restoration projects for clients like private and public foundations and the church. In this case, the firm acts as a channel for the application of CSIC knowledge capabilities in the applied area of restoration, using and applying the approaches and methodologies developed by the Archaeology group. The most important early step in the relationship was a formal “financial interaction” with a third party: both the firm and the group work under contract for the regional government. Yet a “text interaction” preceded this relationship as the SME was aware and had read the written work, both academic and in the press and the web, of the research group. From the initial collaboration further informal interactions emerged, with both parties researching together (they have joint academic publications) and the SME claiming a direct influence in the definition of the group’s research agenda. A similar evolution from “text interactions” into contractual links leading finally to long-term informal personal interactions developed between the Demography group and a Spanish ONG (see below).

**Directionality**

Again, we found great diversity on the direction of the flows of information and influence between researchers and stakeholders. On some occasions we have situations of unidirectional knowledge transfer from academia to the stakeholder communities. For instance, CSIC researchers have helped public sector organizations by providing expert opinion or a service. For instance, the Philology group helped the security services in their analysis of voice recordings, and Manuscripts researchers have helped catalogue and restore manuscript collections. The Identity group has worked with neighbourhood associations around a large derelict prison (Carabanchel) and terrorism victims helping them understand and document their situation and present demands to government authorities. In all these cases the relationship was unidirectional: the researchers provided services and advice, with little involvement of stakeholders in the definition of research agendas. Only one fifth of the academics we interviewed said that stakeholders participated in the design of research projects or drafting research agendas, but in a majority of cases (64%) they influenced the research content and

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3 The company representative interviewed for this study stressed the importance of the public sector in setting up the heritage protection regulations that define the demand for the methodologies that the archaeology group develops.
approaches, suggesting that, although stakeholders seldom participate in the writing and design of research projects they nevertheless have an influence on the selection of research topics and methodologies carried out by the researchers. This is clear, for instance, in the case of the Scientometrics group, where requests for studies and information from policy stakeholders were conveyed through the link that the group has established with the foundation Genoma España. Through this mechanism the group tailored some of its research activities to the requests received from policy stakeholders.

We have found cases where the mutual influences are very substantial and went beyond the definition of some research topics. The Music group, specialised in Spanish XVIth Century music, worked with a small specialized recording company and performing musicians. The collaboration has led the musicians to adapt and modify the way they were interpreting music from the period, but researchers are also modifying their research priorities and communication methods: not only are they using modern notation in the transcription of period compositions, but they are adding notes and comments to help modern musicians interpret them. This is a departure from the normal practice among academic musicologists who have traditionally worked with old notations. Therefore the type of work of the musicologists has been modified because of their interaction with “stakeholder” (in this case performing groups and music production firms). The outcome of this collaboration is that new records are being produced with music that had not been played for hundreds of years thus bringing to the public the musical pieces from a very prolific period in Spanish music (the XVIth Century) that is now being rediscovered.

Similarly, in theatre, the director of the National Classic Theatre Company (Compañía Nacional de Teatro Clásico, the leading Spanish classic theatre company) argued that CSIC researchers had changed the way in which Spanish classical theatre is performed. Their influence can be traced back to the 1970s when they oriented their research agenda beyond textual research to cover also the context in which plays were performed. From the 1980s, this work, he argues, has completely changed the way in which Spanish plays from the Baroque period (the “Golden Age” of Spanish literature) are performed at all levels from production to lightning and acting.

We have found evidence of situations where the collaboration has affected the research agenda in the Philosophy, in addition to the Archaeology, Scientometrics and Demography groups. In one case a prosecutor in charge of coordinating all road safety prosecutors, suggested the topic of road safety to the Philosophy group, which had been working on violence and the victims of violence. The stakeholder was interested in driver behaviour that could lead to road accidents. The stakeholder initiative led to a collaboration in which both parties worked together leading to both scholarly publications and policy reports. So far, this interaction has been carried out without any contract or formal agreement. Both parties are now working on a joint research proposal to the Ministry of Science and Innovation seeking to intensify their collaboration.

The Directorate General for Immigration in the Andalusian regional government collaborated with the Immigration group in the selection both of research themes and methodologies. The Genoma España Foundation, which contracts research to the Scientometrics group, obviously contributes to the definition of the research themes. The “Casa Asia” also proposes research themes to the International Relations group.

The importance of publications

Text interactions were important. Almost all researchers interviewed (93%) published academic material (journal articles, scholarly books,...) and grey literature and reports. A large percentage (79%)
wrote for the printed media (newspapers, magazines,...) and produced web content (71%). Further all the stakeholders interviewed had read written scholarly work (journal articles, books,...) from the researchers.

In one case, the core of the relationship was a text interaction. The Demography group established a link with the main ONG in Spain providing support to vision-impaired people (ONCE), through a website provided by the former. The group created a portal, with the help of Spanish public sector organizations, offering lots of information for people working in the area of elderly care. This information was used extensively by psychologists working for ONCE, among many other organizations, to find resources to support their work, including methodologies, intervention programmes and other resources. ONCE also supplied documents for the portal.

The effects

All but one of the researchers interviewed believed that stakeholders had benefitted from their research, providing the basis of ideas and arguments to develop or confirm actions and helping develop products or services for popular consumption. The types of “impact” that researchers and stakeholders have brought to our attention are wide-ranging.

Information outputs: documentation, books, exhibitions, ...

There is a significant number of researchers who have held exhibitions and exhibition catalogues (50%) and standards and codes of practice (43%). In the majority of cases (57%) these outputs were produced with the collaboration of stakeholders. For instance:

- The “Casa Asia” organized with the International Relations group several meetings, events and exhibitions. They have produced jointly several books and exhibition catalogues.
- The foundation Genoma España uses the results of the research contracted to the Scientometrics group to produce its annual reports, which are widely distributed.
- The Monastery of Montserrat has produced exhibition catalogues and books based on the work of the Manuscripts group and have collaborated in the organization of events.
- The archaeology service of the Galician regional government has published popular books in collaboration with the Archaeology group.
- The Linguistics group and the police linguistic forensics group have collaborated in the organization of seminars and courses.
- The Casa Sefarad-Israel has organized events with the Jewish Culture group and they have uploaded their results on the web.
- The Immigration group and the Andalusian regional government have collaborated in the production of web content.
- The small music producer and the Music group have collaborated in the production of recordings (see below).

We can conclude that, among the groups we have interviewed, the stakeholders have often played a very active role, collaborating with researchers in the joint production of outputs targeted to non-academic audiences.

Interactions in Public Policy

In policy-related fields, the arguments and results generated by the academics, or co-generated in collaboration with stakeholders, have been incorporated in policy documents. For instance, in the field of road safety, the stakeholder is using the work of the CSIC academic (Philosophy group) in the production of internal and external documents including the prosecutor’s office annual reports, which are distributed to other prosecutors and to Parliament. The stakeholder believed that the results
provided a “deep knowledge” of the causes of driver behaviour, and that this knowledge can be applied to the design of school texts, road safety campaigns and other policies. In this case, however, there is no evidence yet of any policy changes or initiatives traceable to this collaboration; as in most policy fields change is slow to come and often the result of a slow percolation of the outcomes of multiple studies, debates, and initiatives.

In the immigration field, the regional government stakeholders also stated that the reports and data supplied by the Immigration group helped them to develop policies and are used “constantly” by their technicians. The argument presented by the interviewee was that “rigorous scientific knowledge” on the personal, social and work implications of migratory flows was very helpful to design policies to manage the increasing flows of immigration that Andalusia was receiving. The information received was, for instance, used to support the decision to launch of campaigns to increase social awareness about immigration issues. The use of data to inform decisions occurred also in the case of the studies carried out by the Scientometrics group for the foundation Genoma España, which used their results to inform funding decisions.

Finally, documents produced by the CSIC research groups have been occasionally used by government departments to argue their position in policy environments. For instance, the Jewish Culture group received a request for help from the Ministry of Foreign Affairs on a court case brought by a US Jewish association after the discovery of a Jewish cemetery in Toledo. The technical report produced by the group was successfully used by the Ministry; again the report was produced without any formal agreement or financial exchange between the Ministry and the research group.

In short, therefore, the policy contributions made by the CSIC groups we have studied range from the occasional response to a governmental need, to long-term collaborations to develop and foster specific policy approaches.

Use of tools and techniques
Another instance of impact is the direct use of the skills and capacities of research groups in tasks required by stakeholders. The work of the Archaeology group for private firms falls into this area: Endesa CyR stated that the methodologies deployed by CSIC archaeologists were innovative and helped the firm develop their approaches to deal with heritage sites and improve the delivery of future projects. In another field, the interviewee from ONCE (an ONG working with the blind) stated that the content they found in the Web portal helped them design new programmes in a way that would not have been possible without this information.

The tools and approaches developed and used by the police forensic acoustic laboratory have been developed, in part with the help of the Linguistics group. Researchers from this group and the university lecturers that had taught them while they were undergraduate and graduate students had been involved with the linguistic forensics group since its creation (its head obtained his doctorate in linguistics from the same department that the researcher), and had helped them establish the tools and techniques the laboratory uses, particularly in its early stages. As the laboratory grew in experience it also become more self-sufficient and has reduced the extent of their links with the research group. The development of tools and techniques is now done more autonomously by the police group itself, while the research group is sometimes called upon to provide a “second opinion” for specific forensic analysis. Both through this support, and through their initial contributions to the development of the laboratory, the Linguistics group has contributed to the arrest of many convicted criminals.
Conclusions

**Main results: explaining impact through productive interactions**

We have identified a plethora of "productive interactions" both in the UK and Spanish cases: there is no dominant mode and in both countries we found instances of every type of interaction. It was even common for different types of interaction to be present within the same group (Spain) or project (UK). To an extent this is to be expected; financial interaction for instance will normally require direct personal interactions as it is unlikely that a research or consultancy contract can be accomplished without a personal interaction between client and supplier. More interestingly perhaps, in several cases indirect interactions (mainly through publications, or "text interactions") were the initial step that led, eventually to other types of interactions. In several occasions we found that non-academic stakeholders had initially learnt about a researcher or research group by reading their work; this indirect interaction lay behind further steps usually taken by the stakeholder to establish a direct link with the academics and eventually fund research or consultancy work.

In both cases, BRASS and CSIC, every project or group displayed its own dynamics, building their own contacts from the bottom up and without apparent central lead. This explains the diversity of interactions across groups and projects. However there were some dominant traits. At CSIC direct informal interactions were very important and they were mostly long-term: many CSIC interviewees had known the same stakeholders for more than 20 years. Small research groups established long-term links with small stakeholder groups (often individual-to-individual) with whom they often collaborated without the intermediation of any contractual tool (mainly because the links were not associated with financial arrangements). The situation at BRASS was different: here many of the interactions we encountered had been initiated and developed within the life of the Centre; they did not predate its creation. This suggests that the BRASS Centre has played an important role in developing new links.

The degree to which interactions have come to influence the research agendas of the groups, and the way in which research is carried out in collaboration with stakeholders also change across groups and projects. The CSIC Archaeology group is an example where a substantial amount of work it is doing is under contract with construction engineering firms to address legal requirements. These requirements therefore frame part of the activities of the group, although, in principle, their mainstream academic research may still be distinguished from the "consulting" work carried out with these stakeholders. In other situations the stakeholders have played a crucial role in defining the academic research agenda of the researchers with whom they interacted. The Music group adjusted its research activities to the stakeholder needs, producing, for instance music scores that could be played by modern musicians. At BRASS, research was often adapted to stakeholder needs, as in the case of the work on the Argentine mining industry and on “Sustainable Communities”; in both cases managing stakeholder expectations of the research agenda and its alignment with stakeholder needs were crucial elements that needed to be addressed before the research started.

Our objective was to identify impacts through the analysis of the interactions, and, again, the forms and types of impact we encountered varied across research groups and projects. In some cases there is a clear target, with an identifiable effect, which can even be assessed in monetary terms. For instance, the application of social marketing techniques developed by the BRASS team for the fire services in Wales led to an identifiable reduction in grass fires. Here the objective of the implementation effort is clear and narrowly defined and could be assessed using standard techniques applied to the impact assessment of marketing campaigns. In other cases, however, the nature and attribution of the impact are more debatable. For instance, in the case of the Bovine Biosecurity project
(BRASS), it can be argued that the level of information on animal disease management provided by the Welsh Assembly Government to local vets has improved substantially as a result of recommendations made by BRASS researchers; it is, however, difficult to quantify the eventual impact of such improvement in service delivery. Another example is the involvement of Spanish archaeologists in the provision of archaeological impact analysis required by the Spanish law before a big construction project is launched; here, there is a clear interaction with stakeholders who are direct (non-academic) clients of the (academic) research groups. Yet, if this type of research leads to the discovery and preservation of a site of historical value, not only it is arbitrary to attribute a monetary value to this “impact”, but the effect occurs as a result of the interaction among many agents, not least the initial legislators who imposed additional regulations on new building activities. The study of interactions allows us to identify the different contributions that, overtime, have led to an “impact” but the quantitative assessment of the value of this impact and its attribution (and “distribution” across) original causes cannot always be addressed through these tools, and would require judgements that, to a large extent, would be arbitrary.

Finally, we have found examples where there is an identifiable and clearly attributable outcome of the interaction, but whose “impact” remains difficult to measure. This is typical for instance of “social impacts” derived from research activities in the Humanities. For instance, the discovery, “translation” and publication of Spanish XVIth Century music is clearly the result of a productive interaction. Its impact can be interpreted to be small, as the audience for this type of music remains very limited, so much so that the production and distribution of recordings cannot be made on a commercial basis. Arguably, the preservation of the cultural heritage is a valuable impact, but the assessment of its value will depend on the extent to which popular demand for these cultural goods is considered to be a crucial element in the impact assessment.

**Methodological conclusions**

**Applying the SIAMPI methodology in different contexts**

Both in the Spanish and the UK case we enjoyed the support and help of all the researchers and most of the stakeholders we interviewed. We understand that this support and the extent to which a set of research instruments like the ones we used will be welcomed by potential interviewees will depend on the context within which the study is conducted. In our case, and for different reasons, the SIAMPI approach was welcomed and we received substantial support from researchers and managers to organize our interview programme. In Spain, the lack of experience in the area and the perceived importance of social impact assessment in the future justification and definition of SSH research led to unquestioning support by CSIC social science researchers and management. Also, the focus of our approach on interactions (whether formalized or not) has been very well received by the research community, as formal CSIC assessment mechanisms have so far focused exclusively on commercialization activities backed by formal instruments (contracts, licenses and spin-off). In the UK, the ESRC saw our approach as an incremental development of the kind of qualitative research they have been implementing for years. The differences between the SIAMPI approach and previous assessment methodologies implemented by the ESRC were discussed in a meeting with the ESRC Research Evaluation Unit.

When applying the questionnaire format we found that it triggered reflection on the part of the interviewees. In many cases the interviewees stated that the questionnaire had helped them understand the ways in which research and its results can be applied, and the variety of forms of application and impact. The nature of the evaluation process that follows is therefore “formative”: it contributes to the assessment and improvement of practices and it does this, in part, directly through the interviews themselves.
To secure the interview programme we worked at different levels, including funding organizations, centre and institute directors, project and group leaders and researchers. Our case studies did not depend exclusively on a single “case representative” for the whole “organization”. In the ESRC our entry point was the Research Evaluation Unit at the ESRC; this group manages and performs evaluations of all ESRC research investments and has a long experience in impact assessments and evaluation. We knew several members of the Unit through previous evaluation assignments we had conducted for the ESRC. The Research Evaluation Unit suggested BRASS as a case study, and the BRASS Director supported us in the design of the interview programme, the identification of projects to study and to establish initial contacts with the researcher.

CSIC does not have an evaluation unit and organizes its research in a distributed way, with the research groups having substantial autonomy in defining their research priorities and strategies. In this situation we cannot speak of a single “case representative”. We obtained the support of the Social Sciences and Humanities “Area Coordinator”: the individual responsible for organizing tasks that involve the whole area and represent it in higher-level CSIC meetings and committees. As we are ourselves a CSIC Research Institute we knew the “Area Coordinator” well; in addition we had previously carried out a study of transfer mechanisms upon his request. Before the start of the fieldwork the “Area Coordinator” changed but the new appointee continued to support the project.

**Minor changes and adaptations**

The interview questionnaire has proved very useful in eliciting responses and encouraging reflection by interviewees. We have used the original SIAMPI questionnaires and guidelines with very few changes. We found, however, that some of the questions and the way they were structured implicitly assumed that the subject of research was a project, with clear start and end dates. For specific research projects their activity needs to be differentiated from the activity of the group or centre that predated or accompanied the project; this is obviously not the case for the assessment of stable research groups or organisations, an we had to adapt the questionnaire for the analysis of CSIC groups. In other words, although we found that the conceptual framework we developed was applicable to both research projects and research groups (very different institutional environments), the specific questionnaire still needed to be fine-tuned to adapt them to the specific context under study.

Furthermore, some of the questions offered a list of items (possible types of direct or indirect interaction) as way to prompt the interviewee and to analyse the variety, or lack thereof, of interactions. Again, these lists needed to be adapted to the specific contexts. In our fields, for example, conferences and professional training events were potentially relevant forms of interaction that could have been added to the list.

We also added some questions to the BRASS researcher interview enquiring whether the research led to new products and if so whether and by whom had they been marketed, and who their beneficiaries were. A specific mention of the use of research results to argue, develop or justify policies environments was also added. In contrast some of the questions in the stakeholder interviews turned out to yield repetitive information: respondents did not make a difference when asked about what efforts had they make to apply research results (to identify whether the interaction can be considered productive), and when asked to identify impacts. In practice, it was difficult to differentiate between productive interactions, (involving efforts to apply results), and the “impacts” that the interviewees were identifying. Although from a conceptual perspective the difference is clear, in practice interviewees mixed both aspects into a single account and interviews and their transcripts were often repetitive. The
interview outline may need to be adjusted to try to elicit a clear distinction between the identification of productive interactions and the identification of impacts.

It is clear from our experience that a single questionnaire cannot be used across different contexts and that it will need to be adapted to different specific conditions. Yet, these adaptations did not affect the conceptual framework or the structure of the questionnaire, and they were in the main matters of detail. Some more generic difficulties and limitations of the approach are discussed below.

**Generic problems and limitations**

Our experience with the application of the SIAMPI approach and questionnaire structure has been, in the main, very positive. As we have discussed, the approach allowed for the identification of sets of interactions and social contributions that had not previously been visible to research managers. The questionnaire structure showed its value in helping interviewees reflect upon and interpret the processes (interactions) through which they had contributed to social goals, or effected social changes.

There are, however, some generic methodological difficulties and possible limitations in the approach we have adopted. First, our approach implicitly hinges on a clear distinction between academic and non-academic (stakeholder) communities, which are linked through “productive interactions”. Yet, in practice, this distinction does not always appear to be as sharp as we had assumed. In the BRASS project on mining the “stakeholder” identified by the researchers was an Argentinean academic: a geologist with close links to the mining industry and who came to the British team because of specific policy concerns. Therefore, in this case, applied social and political problems were channelled to the social researchers by another academic working in a different discipline and playing a “stakeholder” role. A different situation emerged in the CSIC Manuscripts group: here the nominated stakeholder was a monk, whose interests nevertheless were convergent with those of the researchers involved in the project. Although they did not share professional communities both parties shared the same intellectual interests in the analysis of the manuscript collections. There was an exchange of resources (access to collections in exchange for help in their classification, maintenance, and analysis), but both parties to the exchange shared the same goals and objectives with regard to the study of these manuscripts. There was no clear distinction between the objectives of both parties: the preservation of a piece of heritage that provided, at the same time, a research object necessary to pursue their intellectual interests. Finally, in the BRASS case we found situations in which individuals had moved from positions in industry to academic research posts while keeping a direct interest in industrial activities. This was the case, for instance, of the project on micro-factories in the automotive sector. When the same individuals share an involvement in academia with the maintenance of activities in industry or government, the channel of application is not an interaction between members of distinct (academic and non-academic) communities but rather the mobility of an individual across different institutional settings.

Another potential difficulty stems from the fact that our approach is better at identifying some types of interaction than others. In both the Spanish and UK cases our study recognized many interactions revolving around direct (personal contact) mechanisms. Although we also found, through the interviews with stakeholders, that this direct interactions were sometimes preceded by indirect ones (mainly through texts), it was only when a direct interaction had taken place that we identified the existence of an indirect link. Our “point of entry” into the enquiry is the researcher, and it is often very difficult, if not impossible, for researchers to be aware of the readers of their work and the potential use that they have made of what they have learnt by reading, say, a book, an article or a report. When the main channel through which a social impact has taken place is an indirect one, researchers may not
even be aware of the use social use made of their work. They may be aware that, say, a report has
been widely read in a different country but may not be sure as to how the study may have influenced
local policies. In responding to the questions in the interview, researchers will focus on those cases
where they have more direct evidence of impact, and this will be based on interactions in which they
have been directly involved (direct interactions).

This bias in favour of the identification of direct interactions is, however, difficult to address in
evaluation practice. Instead of tracing forward from the researchers, it would require “tracing
backwards” from observed events into the trail of actions that have led to them and eventually to the
interactions (direct or indirect) that have contributed to the events; yet if our interest is in the evaluation
of a specific activity or intervention this approach is faced with a potentially infinite number of events
and effects that need to be “traced back” to a similarly large number of contributory factors. To use this
approach to assess the impact of a specific research initiative would require that we know beforehand
the effects that we are trying to identify. Tracing forward through from the activities we are interested in
remains the only practical approach to the impact assessment of specific activities and interventions.

A final, practical difficulty with our approach, and in particular with the specific implementation we have
developed through our questionnaire format, relates to the “raw” data we obtain. Our approach
emphasizes interactions and therefore the mutual influences to which researchers and stakeholders
may subject each other. It is good at identifying, for instance, the feedback mechanisms by which the
activity of researchers may be influenced by their interaction with stakeholders, and these processes
become the focus in the study. In so doing, the framework does not adopt a model of linear causality
in which impacts must flow from research results, and can identify more complex means of generation
and application of research results, hence the importance of focusing on interactions when analyzing
social impacts. Yet, by taking this approach the data we have collected has not usually followed a
storyline. Storylines describing, for instance, how a set of interactions evolved and gave rise to specific
social impacts, are central to our understanding of how social impacts have taken place, in the
qualitative approach we have developed we cannot do without them. In practice we have had to
assemble the storylines in a piecemeal fashion from the fragmented evidence that we collected
through our focus on the identification and description of different sets of interactions.

Suggestions for good practice

The conceptual framework and overall SIAMPI approach provided a useful tool to identify impacts and
the processes through which these impacts came about. One of its main strengths was its focus on
both processes of generating and applying new knowledge; these do not necessarily have to take
place sequentially as the notion of “impact of research results” may imply. “Productive interactions
allow us to identify instances in which research agendas are shaped by application concerns, and
where research occurs “in the context of application”, as well as more linear processes in which the
results of a research activity are, after the research is concluded, applied to practice. The way in which
this notion and its accompanying conceptual framework are implemented through specific research
instruments need to be adapted to the specific social impact assessment context to which they are
applied.

We need also to keep in mind that the “productive interaction” is only a means to identify and trace
social impact: the objective of our work is not to describe interactions but to use them to identify and
explain instances of impact (or as a tool to explain why social impact may not have occurred).
Questionnaires need to be structured in such a way that specific instances of social impact (if they
occur) are discussed in depth, and storylines are provided. Finally, as in any other impact assessment
conducted through interview instruments it is important that interviewers are familiar with the problems
and difficulties of impact assessment and are experienced in conducting this type of interviews. The quality of information that can be derived from a questionnaire like the one we have used in this study is dependent on the experience and skill of the interviewers conducting the study.