IMPACT EVALUATION OF PEOPLE AT THE CENTRE OF COMMUNICATION AND INFORMATION TECHNOLOGIES (PACCIT) PROGRAMME

REPORT ANNEXES

ANNEXES
A. Methods
B. Core Questions Framework
C. Semi-structured Interview Guide
D. Profile of Interviewees
E. Survey
F. Document Analysis
G. Media Analysis
H. Lessons Learned: Good Practice Suggestions

Laura R. Meagher, PhD
Technology Development Group

FEBRUARY 2009
ANNEX A: Methods

1. Overview
1.1. Conceptual approach
Because we wish our studies to be *useful*, not simply summative, we have geared this study to both: 1) identification of examples and processes of impact generation and 2) capturing for future use both lessons learned by PACCIT and implications for good practice in other ventures.

Our approach to this Case Study has been “purposeful, pragmatic and cognisant of the complexities involved”, as recommended in ESRC’s 2005 Symposium. We have sought multiple perspectives, in line with the PA Consulting & SQW Economic Impact Study’s Final Report, which noted (p.4) that “impact assessments will, in most cases, need to consider a wide range of outputs and impacts and consequently beneficiaries”. To help us distil complexity into clarity, we have made use of a conceptual framework such as we developed for our Psychology Impacts Study, which illustrates flows of knowledge, expertise and influences involving policymakers and practitioners. (Key points captured in Meagher et. al., 2008)

We have deliberately sought to capture not only instrumental impacts of research but also more subtle (yet vitally important) impacts in the form of “enlightenment effects, capacity building and cultural change” among policy makers and practitioners.¹ We are interested in the evolution of the 7-year Programme (through its three phases) and in realistic timeframes of both impacts and indicators of impacts in progress.

We took a positive attitude toward working with PACCIT-related individuals in order to find examples of impacts and indicators of impacts in progress. (The 2005 ESRC Workshop recommended focusing on successes.) Similarly, we have drawn on our extensive experience of drawing out insights and reflections on impact-generating processes, helping academics and non-academics to crystallise messages that can help ESRC or others hoping to generate non-academic impacts from research.

1.2. Triangulation
We have found that a multi-method study works best for a project of this sort, strengthening findings and deepening insights. We have also found that development of a common Framework of Core Questions makes it possible to triangulate findings from across the various methods employed and thus ensure robust interpretation. The portfolio of methods we employed thus included:

- Framework of Core Questions
- Document Analysis
- Surveys
- Semi-structured interviews

¹ Although other definitions exist for types of impacts, we use the following definitions (Nutley et al. 2007, p.36): “Broadly, instrumental use refers to the direct impact of research on policy and practice decisions. It identifies the influence of a specific piece of research in making a specific decision or in defining the solution to a specific problem, and represents a widely held view of what research use means. Conceptual use is a much more wide-ranging definition of research use, comprising the complex and often indirect ways in which research can have an impact on the knowledge, understanding and attitudes of policy makers and practitioners. It happens where research changes ways of thinking, alerting policy makers and practitioners to an issue or playing a more general ‘consciousness-raising role’. Such uses of research may be less demonstrable but are not less important than more instrumental forms of use”.
• Development of embedded constituent case studies/examples
• Media searches related to case studies
• Observation
• Integrative Analyses

Another layer of triangulation was provided by diversity of perspective since we gathered input and insights from diverse key informants:

• The Director and Administrator
• Researchers
• Chair and Members of the Programme Management Committee
• Collaborators from industry, policy, practice

Since we were seeking to identify examples of success in generating impact, we were particularly interested in those stakeholder/user individuals who can describe impacts (or indicators of impacts in progress) and who can reflect upon the processes, activities or roles that led to the impacts, ideally offering generalisable lessons learned (including positives and negatives). Most of the users we interviewed contributed to the narratives for illustrative constituent case studies; additional users provided input via our survey.

2. Description of methods used to collate and analyse data

2.1. Framework of Core Questions
We developed a Framework of Core Questions (Annex ), identifying for each question the method(s) most likely to generate information. This ensured that we covered all key facets of this assessment, while also making it possible to integrate findings across methods in the final analysis. This was informed by the framework of processes and roles we developed in the Psychology Impact Study, as well as by other logic models such as that developed by the Canadian Health Research Foundation. (The Report of ESRC’s 2005 Workshop recommends, “Develop a good understanding of research impact by mapping the processes through which impact occurs and use appropriate models of these processes to guide data collection and analysis. This will entail the use of multi-dimensional categories of impact and a range of data sources.”)

2.2. Survey
Drawing upon the Framework of Core Questions, a short, easy-to-complete survey was drafted to cover key areas of interest, and revised with input from ESRC. (Annexes: Survey form, Survey results, Survey analysis in depth) Arrangements were made using Survey Monkey to develop, distribute and analyse online surveys. A clean, relatively up-to-date database of 109 individuals involved in all PACCiT Phases was developed from contact information provided and supplemented by some additional searching (mainly for missing non-academic partners). The final database represents all but 14 names (13 of whom are non-academic) who were listed on the original project list provided by ESRC.

It is highly likely that individuals suffered from survey fatigue, as previous surveys were sent out by both the evaluator of academic impacts and the Director in pursuit of her study on connectivity. To try to counter this, a carefully constructed, encouraging cover letter was sent out at the end of August to these individuals, including a link to the survey. In both this letter and the introduction to the survey, the point was emphasised that this is a study of non-academic impacts and is thus
complementary to previous surveys the same people have been asked to complete. After email distribution at the end of August, reminders were sent out to non-respondents in mid-September. Individual cases (e.g. those who had previously opted out of Survey Monkey or a couple of individuals whose survey forms contained only their name) were contacted individually. The PACCIT Administrator encouraged individuals to respond, interviewees were encouraged to complete the survey as well and another reminder email was sent.

We were very pleased to have achieved a response rate of 45%, with 50 surveys returned. Nearly a third of the respondents are non-academic collaborators and knowledge intermediaries.

2.3 Document Analysis
Document analysis centred on:
- Project Results Page & Project Page, Projects, PACCIT website
- Director’s Final Report
- Director’s 2005 Annual Report (6th year PACCIT – provides a window prior to the fully considered final documents)
- Director’s Presentation, 6/12/05
- Draft Report, Director’s Fellowship
- PACCIT website, e.g. Events, Press, etc.

Through scanning these various documents, relevant points were identified and findings were captured in a chart (Annex), in categories including:
- Non-academic Impacts
- Indicators of Potential Impacts
- Examples of user interactions, events, guest presentations etc.
- Conferences etc aimed at users
- Connectivity
- Additional non-academic funding
- Obstacles/issues: Management Programme or Projects
- Obstacles/issues: University/non-academics.

The document analysis conducted early on informed the overall study and was useful in selecting case studies.

2.4 Media Analysis
Seven key, diverse publications have been searched for references to PACCIT generally and to the five case studies. These were: THE, New Scientist, Nature, the Guardian, the Times, Computing and Computer Weekly. The Search strategy (for 1999 and later) included:
1. PACCIT
2. Full title of project
3. Abbreviated title
4. PI name
5. Name of non-academic partner organisation

At times if a PACCIT researcher was cited, judgment calls had to be made, erring on the side of including possibly relevant articles, as of course authors of articles did not as a rule distinguish among different projects. In a sense it was “lucky” if a PI was quoted by name, without expecting a project to be named rather than being referred to generally as “a study” or “research”. Some additional articles were noted, since they can provide context for case studies.

2.5 Semi-structured Interviews
Drawing on the Framework of Core Questions, an interview Template was devised (attached as an Annex). Six overview interviews were held with the Programme Director, Programme Administrator, Chair of the Management Committee, one academic and two private sector members of the Management Committee. The analysis emphasised: important (even if subtle) non-academic impacts identified; key processes highlighted as helping to bring about impacts or steps toward them; good practice advice and recommendations to funding bodies in the future.

Seventeen interviews were held with individuals involved in the projects selected as case studies. For each of these five projects, three (or four) individuals, including at least one academic and at least one non-academic, were held. Key points for each question were transcribed, coded and analysed across interviews as well as being used to construct case studies.

2.6 Case Studies
Informed primarily by document analysis (e.g. Outcome Sections of Final Report summaries of Projects) and early discussion with the PACCIT Director, a set of five Case Studies (greater than the number stated in the Tender) was selected in order to capture and illustrate impacts from ESRC PACCIT funding. This is in line with accepted practice for this sort of evaluation of impacts from research. Case studies are: E-Advice, Making Games, ROLLOUT, E-Drama and HOMEWORK.

Furthermore, the Case Studies were selected as likely to be useful in illustrating various processes, lessons learned and good practice, for the benefit of researchers, non-academic collaborators and funding bodies in the future. In addition, the Case Studies selected highlight a range of arenas in which impacts were made (e.g. improved dissemination of financial advice, education). Further diversity is represented in the type of impact (e.g. spinout, educational products, software, raised awareness)

2.7 Observation
By good fortune, an opportunity arose to add Observation as a method --- the PACCIT Director organised a workshop still under the PACCIT rubric (for PACCIT individuals and others) on future funding trends and important themes. As an addition to the planned work of the study, Meagher attended the 10/9/08 workshop “Shaping Future Funding and Research in People and IT”.

2.8 Integrative Analyses
The findings of the various methods were analysed individually and then brought together to shed light on the Core Questions and form the substance of the Report, particularly the Commentary and Discussion. Integrated analyses have made it possible to: a) assess extent and present examples of impacts, b) elucidate important processes and c) reflect upon evaluation methods. A big picture sense of the extent to which the Programme was effective in meeting its policy and practice impact objectives (including promotion of academic/business collaboration and knowledge exchange) is complemented by documenting specific examples/developing case studies. Digging deeper has made it possible to identify and assess processes or mechanisms through which PACCIT achieved impact (e.g. dissemination, networking, academic/business collaborations, knowledge exchange) --- and thus to identify lessons learned as to process and best practice for future ESRC/EPSRC research and collaborations with non-academics.

2.9 Critical Reflection on Methods
We also offer below a critical reflection on methods used – in general, the feasibility of specific attribution of impacts and more specifically what methods within the study worked, what didn’t, what might be modified by others seeking to identify and assess impacts in the future. Reflections on deeper questions of causality and attribution of impacts are included in the body of the Report.

3. Advantages and shortfalls of the evaluation method

3.1. Overview
Employing a multi-method approach to evaluation was clearly an advantage, as it enabled triangulation and a richness that no one method could have provided alone. While the overall evaluation did not lend itself to quantification, the use of a survey provided some ability to aggregate views and qualitative insights across multiple projects. These findings were then fleshed out through deeper reflection during interviews. Case studies made it possible to illuminate more fully examples of key impacts and to dig still deeper into understanding as to how impacts come about. We continue to find that our use of a Framework of Core Questions allows us to bring together input from across methods to target key aims of the evaluation. We also find that our depth of experience with this sort of question, including our understanding of flows of knowledge and appreciation of development over time, allowed us to pick up readily nuances that may be quite important as understanding of connectivity between research and impacts grows.

3.2. Assessment of Particular Methods
We would single out as particularly useful the following methods:

- The survey gave us a great deal of information, despite the disadvantage of evident survey fatigue existing among the population surveyed. We would recommend this sort of very carefully designed survey to future impact evaluations, as it can pick up not only examples of impacts or indicators of impacts-in-progress but also understanding as to developmental stages, sectors reached and so on. Incidentally, we found Survey Monkey to be useful in that it was accessible to us as evaluators and to respondents.

- We would also recommend development of case studies, along with many others (including, for example, PA Consulting & SQW in the Excellence with Impacts report to RCUK, also ESRC Workshops on this issue) as a key approach in elucidating impacts from research.

- Gathering multiple perspectives through semi-structured interviews was also particularly useful, including not only academics but also non-academic collaborators and knowledge intermediaries; we found it valuable also to seek out interviewees with a broad overview of the Programme.

Less important as methods, but still making some contribution to the overall study, were:

- Document analysis Since materials were not uniformly oriented to our particular questions, and since they did not provide post-project information or insights, their primary use was to orient us in the beginning of the project and to aid in the selection of case studies.

- Media analysis In the case of the PACCIT Programme, the primary use of this analysis was to provide “negative” information; very few of the projects achieved this sort of attention, indicating a relatively low effectiveness of this sort of dissemination channel.
• **Direct observation** While the recent workshop provided an unusual opportunity to see the Director in action—and to see that she handled the academic/non-academic audience very ably --- this method was of necessity limited, because the workshop took place after the end of the PACCIT programme, so that not all PACCIT participants were present, by any means, nor were they making project presentations.
ANNEX B: ESRC PACCIT CORE QUESTIONS FRAMEWORK

NOTE: All the following questions were explored through Case Study interviews, with most also explored in overview interviews. However, surveys emphasised just the first 5 questions, as participants have been surveyed/interviewed about topics covered in Questions 6-10 during the Director’s Fellowship Study.

1. Examples of impacts (and/or indicators of “impacts in progress”)
   - What (instrumental, capacity-building, enlightenment) impacts have ensued or seem to be in the process of developing?
     - commercialisation/industry uptake, utilisation, spinouts, IP, etc.
     - industry “enlightenment”/awareness raising effect
     - industry training and/or development of collaborative abilities
   - policy uptake, utilisation
     - policy “enlightenment”/awareness raising effect
     - policy training and/or development of collaborative abilities
   - professional practice uptake, utilisation
     - professional practice “enlightenment”/awareness raising effect
     - professional practice training and/or development of collaborative abilities
   - changes in attitudes, academics
   - learning, awareness among graduates, postgraduates, postdoctoral fellows
   - changes in attitudes, non-academics
   - culture change (universities, collaborative organisations, units) in terms of increased appreciation of Knowledge Exchange
   - culture change (universities, collaborative organisations, units) in terms of facilitative processes facilitating Knowledge Exchange
   - enduring collaborative activity
   - enduring dialogue, networking
   - enduring dissemination/knowledge exchange activity
   - What sorts/stages of post-Project impacts can be/have been achieved in terms of a generalised developmental timeline?
     - Continuing dialogue/networking between academics/non-academics
     - Joint knowledge exchange activities (e.g. workshops, training, reciprocal visits) between academics/non-academics
     - Active ongoing collaboration (e.g. follow-on research, new pilot projects)
     - Utilisation of research ideas (e.g. informing new policies or company research strategies)
     - Utilisation of research findings/IP (e.g. development of new products)
2. Role of Programme/project structuring, network, additionality

- What role did the PACCIT Programme play, relative to specific Project(s)?
  - Help in identifying potential non-academic collaborators
  - Help in identifying potential academic collaborators from other disciplines
  - Help in ongoing networking (w/ other academics, disciplines, non-academics)
  - Help with contractual or other components of growing/maintaining lasting relationships with non-academic collaborators
  - Help in providing credibility (w/ home institution, non-academics, funders)
  - Help in developing a new community/sense of identity across Projects
  - Other?

3. Obstacles –and any recognised solutions—in a) generating impacts from research findings and b) identifying/attributing impacts (How were they addressed?)

- What obstacles stood in the way of generating impacts from research findings?
  - Obstacles in identifying partners
  - Solutions (Programme, Project)
  - Obstacles in building connections between academics/non-academics
  - Solutions (Programme, Project)
  - Obstacles in maintaining/growing connections and/or knowledge exchange processes that lead toward impacts
  - Solutions (Programme, Project)

- What obstacles exist in tracking impacts or attributing causality, linking industry/policy/practice changes to PACCIT research? In what ways can impacts be identified or attributed?
  - Obstacles in identifying/attributing uses of research findings
  - Solutions (Programme, Project)

4. Recommendations to ESRC, EPSRC, DIUS and other funding bodies regarding facilitation of impacts

- In the future, how could ESRC, EPSRC or other funding bodies facilitate the generation of impacts from funded research (while also promoting excellent research)?
  - Structuring of grant schemes
  - Incentives
5. Lessons learned regarding good practice, processes likely to enhance the probability of impact generation

- What lessons have been learned that could increase the likelihood of impacts being generated from research in the future?
  - Programme processes, roles, activities
  - Project processes, roles, activities
  - Academic’s roles
  - Non-academic collaborator’s roles

6. Incentives, encouragement, “acculturation” encouraging academics to build linkages with non-academics

- What motivations encouraged academic researchers to build & develop linkages with non-academics?
  - PACCIT/LINK funding
  - Hope of future funding &/or income
  - Interest in real-world problems
  - Facilitation offered by PACCIT programme
  - Other?

7. Activities, mechanisms leading to interactions connecting researchers with non-academics – at the project level and at the Programme level; Roles played

- In what ways were researchers connected with non-academics?
  - Project level activities/mechanisms
  - Programme level activities/mechanisms
  - Most effective form of connection
  - Problems/obstacles in connecting
  - Stage of connection: launch, ongoing, dissemination
  - Level of connection: slight, solid, enduring/very good
  - Sorts of non-academics involved
  - Who played what roles, when?

8. Activities, mechanisms utilised in dissemination/knowledge exchange – at the project level and at Programme level; Roles played

- In what ways did dissemination or knowledge transfer take place?
- Project level activities/mechanisms
- Programme level activities/mechanisms
- Most effective form of dissemination/knowledge exchange
- Problems/obstacles in dissemination/knowledge exchange
- Stage of connection: launch, ongoing, dissemination
- Level of investment/effort involved: slight, solid, enduring/very good
- Sorts of non-academics involved
- Who played what roles, when?

9. Non-academic collaborators, categories and variation
   • What non-academics &/or knowledge intermediaries were involved, in what way? What roles did they play?
     - Type (e.g. industry, policy, practice)
     - Individual, unit or organisation
     - Level and continuity of contact/involvement
     - Role(s) played by collaborators/knowledge intermediaries at different stages (launch, ongoing, dissemination/uptake)

10. Non-academic collaborators’ incentives or perceived benefits of involvement with the Programme/projects
   • Why did non-academics collaborate?
     - Financial incentives, PACCIT/LINK funding
     - Hope for future funding
     - Hope for future market/income
     - Increased understanding of difficult problems
     - Networking with academics, bodies of knowledge
     - Access to graduates
ANNEX C: ESRC PACCIT Interview Template

Purpose of Interview/Study:

This interview is part of the review of non-academic impacts (and impacts-in-progress) of PACCIT research, that we are conducting for ESRC. We also hope to capture insights as to processes that may facilitate the generation of impacts from research. In this way we hope that, by drawing on PACCIT experiences, the evaluation will contribute in the future to both funding schemes and to individual projects, when these are oriented in part toward knowledge exchange and impacts beyond academia.

Our evaluation plan is intended to identify non-academic impacts, capture developmental stages on pathways to non-academic impacts, and illuminate lessons learned.

I. PACCIT Project

II. Interviewee Name:

III. Interviewee Role (PI, Other Researcher, Knowledge Intermediary, Non-academic Collaborator, Overview Perspective):

IV. Non-academic Users, Stakeholders
What non-academic Users or Stakeholders and/or Knowledge Intermediaries have been involved? How?

V. Research Impacts
Can you describe the nature of what you consider to be the primary non-academic impact of your project/PACCIT research? (This could take the form of 1) direct utilisation into a specific product or outcome; 2) new understanding and/or raising of awareness; or 3) training or development of capacity, which could include development of collaborative abilities.)
In what sector (industry, policy, professional practice) did this impact take place, through which specific organisation(s), individuals?

Were there any other non-academic impacts? Please describe them and the sector(s) involved.
We are interested in how impacts are realised over time, through what might be seen as a developmental timeframe. Where would you place post-Project impacts in terms of the following stages in a generalised developmental timeline?

- Continuing dialogue/networking between academics/non-academics
- Joint knowledge exchange activities (e.g. workshops, training, reciprocal visits) between academics/non-academics
- Active ongoing collaboration (e.g. follow-on research, new pilot projects)
- Utilisation of research ideas (e.g. informing new policies or company research strategies)
- Utilisation of research findings/IP (e.g. development of new products)
- Other? (but see if fits into one of above 5 stages)
- NONE?

As a different sort of impact, what can you tell us about any subtle processes such as shifts in attitudes and culture change, and/or enduring interactions, brought about by or during PACCIT work? (within academics, next generation researchers, non-academic collaborators, universities or collaborating organisations)

VI. Processes leading to Impact(s)
What sorts of activities, mechanisms or processes helped lead to non-academic impacts? In terms of interactions at the Project or Programme level? In terms of Dissemination or knowledge exchange at the Project or Programme level?

What obstacles arose? (How were they addressed?)
Who played what roles?
Why did people play the roles they did?
What role(s) did the Programme itself play?

VII. Good Practices, Lessons Learned, Suggestions
What are the most important lessons regarding good practice that you would pass along to others trying to generate impacts from research?

What are the most important recommendations you would make to funding bodies such as ESRC or others hoping to encourage or facilitate the generation of impacts from research?

Can you suggest any ways in which impacts could be tracked so that linkages can be inferred between research and changes in industry/policy/practice?
## ANNEX D: Profile of Interviewees

<table>
<thead>
<tr>
<th></th>
<th>Academics</th>
<th>Non-Academics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview Individuals</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Case Study Individuals</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Total (23)</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>
ANNEX E: Survey

PACCIT: Evaluation of Non-academic Impacts

This survey is designed specifically for ESRC's mandated review of non-academic impacts of PACCIT research. The focus is on impacts and indications of impacts in progress.

By drawing on PACCIT experiences, the evaluation will also contribute to future knowledge transfer efforts. This survey thus complements the inquiries of Dr Michael Fraser as to academic impacts and those of Professor Anne Anderson as to processes involved in generating collaborations. Especially in view of participants' efforts in adding these other investigations, we have tried to keep this survey as short and easy to complete as possible.

Examples of impacts could include (but not be limited to): development of a commercialised product, development of a new policy or legislation, incorporation into professional practice such as education or health service, spread of awareness of a new concept/understanding, preparation of students with new understanding. Some impacts may still be developing, "in progress" as they evolve from ongoing collaborations with non-academics.

1. We need a little information about you (although any responses you give will be anonymised in our report):

   Your name: ________________________________
   Your institution: ____________________________

2. Please select the PACCIT project(s) with which you were involved (select all that apply):

   - ACE Information Appliances in Clinical Environments
   - APPLE: Access and Participation for People with Cognitive Disabilities in Virtual Learning Environments
   - Applying principles of representational design to humanise automated scheduling systems
   - ART Attention Responsive Technology
   - ASPVH Developing a RiskAssessment Framework for the Deployment, Hosting and Integration of BusinessCritical Information Systems by Application Service Providers
   - BLISS Constructing Public Confidence in ICT Systems: Time, Dependability and Trust
   - BROADBAND: Interactive Media in a CrossPlatform Environment
   - CACHET Exploring and mapping interactivity with digital toy technology
   - CNN Community Network Analysis and ICTs: Bridging and Building Community Ties
   - Collaborative casebased learning in distributive and synchronous environments
   - Decision support for risk management planning (REACT)
   - Design for Interaction and Collaboration
   - EADVICE The Cognitive Science of Financial EAdvice
   - EDrama Enhancement of people, technology and their
   - HOMEWORK HOME and SCHOOL Linked via Divergent Technology in a Pedagogic Framework
   - IN TOUCH Designing New Forms of Connectivity for Extended Social Groups
   - Investigating the impact of tailored reports on anxiety
   - LBS4ALL LocationBased Services for People with Mobility Problems
   - MAGIC: Multimedia and graphics in interactive communication
   - MAKING GAMES Developing Games Authoring Software for Educational and Creative Use
   - Multimedia communication as a recreational activity
   - NEONATE Effective decision support in the Neonatal Intensive Care Unit
   - Optimising the Adjustment of Colour as a Means of Reducing Visual Stress
   - ROLLOUT Innovative Representations for Scheduling for Quality and Training
   - SKILLSUM Automatic Generation of Personalised Basic Skills Summary Reports
   - Sociotechnical systems design: knowledge capture and management using patterns
   - Spoken and written language in adaptable multimedia documents
### PACCIT: Evaluation of Non-academic Impacts

**Interaction**
- [ ] ESpace: shared dynamic information displays for transaction-based activities
- [ ] 'The Way We Were': situational shifts in information encoding and retrieval
- [ ] VISTA Virtual Human Interface for the Media SetTop Box

### 3. What was your role in this project?

- [ ] PI
- [ ] Co-investigator
- [ ] Non-academic collaborator
- [ ] "Knowledge intermediary" (e.g. non-academic Advisory Committee member, media or knowledge transfer specialist)
- [ ] Other (please specify)

### 4. We want to capture any SECTORS that your PACCIT research has reached (even slightly or preliminarily). Please select all that apply:

- [ ] Private sector
- [ ] Policy-making (e.g. local, national, UK, EU)
- [ ] Professional practice (e.g. education, health boards)
- [ ] None of the above
### PACCIT: Evaluation of Non-academic Impacts

5. We want to capture SPECIFIC IMPACTS. For as many as apply, please indicate either "Achieved", "In progress", or "Just beginning":

<table>
<thead>
<tr>
<th>Impact Description</th>
<th>Achieved</th>
<th>In progress</th>
<th>Just beginning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uptake by industry, e.g. commercialisation of IP, spinouts, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use in developing new policies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uptake by practitioners, professionals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generating new understanding or raising awareness among potential users of research findings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training and/or developing collaborative abilities in academics, especially next-generation researchers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training and/or developing collaborative abilities among non-academics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased willingness of academic researchers to collaborate with non-academics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased willingness of early career researchers to access knowledge exchange opportunities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased willingness of non-academics to collaborate with academics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased appreciation within universities &amp; collaborating organisations of the value of knowledge exchange</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased facilitation of knowledge exchange by universities &amp; collaborating organisations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enduring collaborative activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enduring dialogue and networking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enduring dissemination/other knowledge exchange activity</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Please describe briefly the impact (or impact-in-progress) of which you are most proud. It would be particularly helpful if you could also describe any PROCESS which helped bring about the impact. Feel free to describe more than one impact/process.
PACMIT: Evaluation of Non-academic Impacts

7. We want to capture the OVERALL level of post-project impact, in terms of “stages of development” achieved so far. Please place the impact-to-date of your PACMIT work on the generalised developmental timeline below (select only one stage that best characterises where your project currently sits):

- STAGE 1: Dialogue/networking between academics/non-academics
- STAGE 2: Joint knowledge exchange activities (e.g. workshops, training, reciprocal visits) between academics/non-academics
- STAGE 3: Active ongoing collaboration (e.g. follow-on research, new pilot projects)
- STAGE 4: Utilisation of research IDEAS (e.g. informing new policies or company research strategies)
- STAGE 5: Utilisation of research FINDINGS (e.g. impact on policy/practice, or use in development of new products)
- None of the above

8. We want to understand the role(s) played by the NON-ACADEMIC COLLABORATORS or other KNOWLEDGE INTERMEDIARIES in helping projects to develop impacts. Please select all that apply:

- Help in identifying potential non-academic collaborators
- Help in identifying potential academic collaborators from other disciplines
- Help in ongoing networking (with other academics, disciplines, and/or non-academics)
- Help with contractual or other components of growing/maintaining lasting relationships with non-academic collaborators
- Help in providing credibility (with home institution, non-academics, and/or funders)
- Help in developing a new community of both academics and non-academics
- None of the above

Other (please specify)
PACCIT: Evaluation of Non-academic Impacts

9. We want to understand the role(s) played by the PACCIT PROGRAMME in helping projects to develop impacts. Please select all that apply:

- [ ] Help in identifying potential non-academic collaborators
- [ ] Help in identifying potential academic collaborators from other disciplines
- [ ] Help in ongoing networking (with other academics, disciplines, and/or non-academics)
- [ ] Help with contractual or other components of growing/maintaining lasting relationships with non-academic collaborators
- [ ] Help in providing credibility (with home institution, non-academics, and/or funders)
- [ ] Help in developing a new community/sense of identity across projects
- [ ] None of the above

Other (please specify):

10. We want to learn about factors that may have helped to facilitate the generation of impacts from PACCIT research. Please select all that apply:

- [ ] Injection of financial support
- [ ] Injection of dedicated staff or infrastructure
- [ ] Provision of other incentives for generating impacts
- [ ] Explicit recognition by parent institution of the value of potential utilisation of research
- [ ] Two-way interactions between researchers and non-academics
- [ ] Facilitating role(s) of knowledge intermediaries (e.g. Advisory Board, professional society/trade body, PACCIT Director)
- [ ] Support for communication of research findings to different types of audiences

Other FACILITATING FACTORS (please specify):

Page 5
PACCIT: Evaluation of Non-academic Impacts

11. We want to learn about OBSTACLES standing in the way of generating impacts from PACCIT research. Please select all that apply:

- [ ] Obstacles in identifying partners
- [ ] Obstacles in building connections between academics/non-academics
- [ ] Obstacles in maintaining/growing connections and/or knowledge exchange processes that lead toward impacts
- [ ] Obstacles in identifying/attribution uses of research findings

Other obstacles (please specify):

12. Can you tell us about any SOLUTIONS to overcoming obstacles identified in the previous question (at Programme &/or project level) that you found particularly useful?
13. We want to help ESRC, EPSRC, DIUS and other such funding bodies to facilitate the generation of impacts from research, while also continuing to promote research excellence. Please select the one possible action that you think would be most important:

- Targeting/structuring of grant schemes
- Provision of incentives
- Help with balancing research quality pressures and KT pressures
- Assistance with practicalities, e.g. identifying partners, IP
- Help with follow-up activity
- Follow-on funding for knowledge exchange/dissemination or further research collaboration
- Help with longitudinal tracking of possible research utilisation/impacts

Please feel free to provide any more detailed or different recommendation(s) you would like to pass along:

---

We want others to benefit from practical lessons you have learned regarding good practice or processes likely to enhance the probability of impact generation from research. Please feel free to contribute short text responses to any of the categories below as advice for others undertaking this sort of challenge.

14. Lessons related to PROGRAMME processes, roles, or activities:

15. Lessons related to PROJECT processes, roles, or activities:

16. Lessons related to academic researchers' roles:

17. Lessons related to non-academic collaborators' roles:
19. *Because we are focussed on non-academic impacts, we would appreciate your steering us to any additional non-academic contacts involved with your project, with name, organisation and, if possible, email address.*

Many thanks for taking the time to contribute. Your input will be very valuable in ensuring that this study both captures past impacts and aids future impact-generation.

20. *If you have any additional comments please use this space here:*
ANNEX F: Document Analysis

Documents

Document analysis centred on:

<table>
<thead>
<tr>
<th>PRP</th>
<th>Project Results Page &amp; Project Page, Projects, PACCIT website</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR</td>
<td>Director’s Final Report</td>
</tr>
<tr>
<td>AR 05</td>
<td>Director’s 2005 Annual Report (6\textsuperscript{th} year PACCIT – provides a window prior to the fully considered FR or PRP)</td>
</tr>
<tr>
<td>DP</td>
<td>Director’s Presentation, 6/12/05</td>
</tr>
<tr>
<td>DF</td>
<td>Draft Report, Director’s Fellowship</td>
</tr>
<tr>
<td>PW</td>
<td>PACCIT website, Events, Press, etc.</td>
</tr>
</tbody>
</table>

Observations

Through scanning these various documents, relevant points were identified and findings were captured in a chart (below), in such categories as:

- Non-academic Impacts
- Indicators of Potential Impacts
- Examples of user interactions, events, guest presentations etc.
- Conferences etc aimed at users
- Connectivity
- Additional non-academic funding
- Obstacles/issues: Mgmt Programme or Projects
- Obstacles/issues: U/non-academics

Input was scanned for but not found for either Secondments or Non-academic Employment. (Note: “Not mentioned” means not cited in a positive vein as impacts, indicators or suggestion of ongoing connectivity. Obstacles/issues may be identified by a “Not mentioned” project.)

Of those projects listed on the PACCIT website as both “collaborative” and “LINK”, projects captured as having some sort of impact, indicator or evidence of connectivity include 9: VISTA, EADVICE, INTOUCH, ASPVH, (MAKING GAMES has no results page, but has results/software commercialised etc.), EDRAMA, HOMEWORK, APPLE, ROLLOUT.

The remaining 2 in these categories that not mentioned below as highlights in website results or Director’s Final Report (tho they appear briefly in AR05) include: BROADBAND, SKILLSUM.

Among those that are listed as “collaborative” but not LINK, the 4 noted below include: BLISS, LBS4all, ACE and ART.

The remaining 2 others (Optimising the Adjustment of Color, CNA-Community Network Analysis) have no mention below of any positive non-academic indicators found in their PRPs.

Thus, of the 17 Collaborative (11 LINK+6 =17), 13 are mentioned below in some positive way.
Regarding the first round of 13 projects, those 7 mentioned below (often as early stage) include: MAGIC, E-SPACE, Design for Interaction and Collaboration, Way we Were, Socio-technical systems; Applying principles of representational design, REACT.

Of this first round, 6 do not have a positive mention below: Case-based learning, Effective decision support in neonatal intensive care units, Investigating the impact of tailored reports on anxiety, Spoken and written language in adaptable multimedia documents, Multimedia Communication as a Recreational Activity, Exploring and mapping interactivity with digital toy technology.

**Discussion**

Certainly, more of the “Collaborative” projects (13 of 17) indicate non-academic results in their Project Results Page – not surprisingly, since they were under an obligation as LINK or LINK-like projects. In contrast, just over half (7 of 13) of the first phase of PACCIT conveyed non-academic impacts/indicators.

A grey area exists between “non-academic impacts” and “indicators of potential impacts” cited. For example, under “Indicators” are listed those projects which have indicated the development of a “prototype” of some sort; of course the degree of completion/near-exploitation achieved can vary. Furthermore, the website Results Pages capture a snapshot in time, and thus do not indicate which prototypes or demonstrator materials have gone on to be refined and/or exploited by non-academic partners post-project. (The Director’s Final Report comments that “One of the key themes for the programme was the way in which researchers have developed new ways to understand user and to design and test prototype systems based on these insights.” p.3 And indeed, the Workplan and Guidance Notes for Application to PACCIT LINK Phase 2, while noting that “Each project will also be required to have a clear route to exploitation”, went on encouragingly to say “There will be scope in the programme for developing a limited number of application demonstrators which will be particularly effective in stimulating technology transfer.”)

There are other limitations in using the Project Result pages for analysis. Few projects mention follow-on funding on their Results pages, whether because this was deemed inappropriate, because funding negotiations were under way but not finalised by time of writing, or because in fact no follow-on funds were being secured. Somewhat similarly, only a few projects specifically cited the important but seemingly “soft” indicator of on-going relationships, yet this might be an artefact of writing/formatting the Results pages, rather than hard evidence of cessation of relationships.

Several projects (mostly the “Collaboration” projects) cited events, presentations, conferences aimed at users; many times, these included PACCIT seminars/workshops. No one mentioned formal secondments or provided any figures as to post-project non-academic employment (other than implied employment in the case of the Dectech spinout.) (However, the 2005 Annual Report noted some placement of (11) users in research programmes and 3 researchers spending some time in relevant user organisations.)

Very rarely were obstacles or issues cited by Projects in what were, after all, celebrational Results pages. The Programme Director provided some aggregate reflection as to key issues, both in her Final Report and in the draft of her Director’s Fellowship Report.
<table>
<thead>
<tr>
<th>Non-academic impacts cited</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E-ADVICE</strong> founded spin-out company Decision Technology Ltd, as a “part-academic, part-commercial research group dedicated to the study of human decision-making and the development of any associated practical applications”, considering exploitation of prototype software on financial advice etc., other revenue and corporate relationships in UK and internationally, several long-term projects; has over 10 full-time staff <a href="http://www.dectech.org">www.dectech.org</a></td>
<td>PRP</td>
</tr>
<tr>
<td><strong>E-ADVICE</strong> academic and commercial partners have pursued exploitation, &quot;including seminar meetings and discussion with leading banks, the FSA and Citizen’s Advice” “They have also launched a dedicated spin out company (Decision Technology Ltd.) to commercialize the research outcomes”</td>
<td>FR</td>
</tr>
<tr>
<td><strong>E-ADVICE</strong> referred to as “an exemplary LINK project”</td>
<td>FR</td>
</tr>
<tr>
<td><strong>EDRAMA</strong> A partner company (Maverick) has produced a DVD as promotional/awareness-raising tool</td>
<td>PRP</td>
</tr>
<tr>
<td>spinout company from <strong>EDRAMA</strong></td>
<td>FR</td>
</tr>
<tr>
<td>“The commercial partners hope to be able to develop an integrated, improved E-Drama facility within an interactive TV programme, a spinout company has been launched to exploit the outcomes of the project”</td>
<td>FR</td>
</tr>
<tr>
<td>“One collaborating small company has made substantial further investment to take the outputs to market” <strong>MAKING GAMES</strong></td>
<td>FR</td>
</tr>
<tr>
<td>Design for Interaction and Collaboration: invitations to exhibit, to assist practitioners with evaluation/development of exhibits and technologies, helped to develop new technology for leading museum etc., ran practitioner forum</td>
<td>PRP</td>
</tr>
</tbody>
</table>
“The research is becoming influential in the museum world.”

<table>
<thead>
<tr>
<th>Indicators of potential impacts</th>
<th>10/03 VISTA won Royal Television Society Technical Innovation Award</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a highlight of dissemination – VISTA award and DTI inviting VISTA to present at a major industry seminar</td>
</tr>
<tr>
<td></td>
<td>visually impaired viewers enthusiastic about final prototype</td>
</tr>
<tr>
<td>MAKING GAMES : game authoring software tool</td>
<td></td>
</tr>
<tr>
<td>MAKING GAMES dissemination to users (teachers and education specialists) highlight: demonstrating game authoring tool at BETT 2006</td>
<td></td>
</tr>
<tr>
<td>prototype software developed and being refined by commercial collaborators, re study input</td>
<td></td>
</tr>
<tr>
<td>EADVICE “findings fed into prototype on-line advisor which is being tested” &amp; exploration of commercial/public exploitation</td>
<td></td>
</tr>
<tr>
<td>EADVICE created prototyped e-advice system, delivered over web</td>
<td></td>
</tr>
<tr>
<td>VISTA 3 prototypes evaluated with target user groups, learning re elderly v visually impaired viewers</td>
<td></td>
</tr>
<tr>
<td>IN TOUCH “development and use of an innovative evaluation method intended to assess complex online services through a prototype”</td>
<td></td>
</tr>
<tr>
<td>IN TOUCH “development of a commercial sales tool demonstrator called “InTouch”, intended as a lightweight and enjoyable front end service, to allow users to manage their social networks and</td>
<td></td>
</tr>
<tr>
<td>Technology Development Group</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>communications in an integrated way</strong></td>
<td></td>
</tr>
<tr>
<td>“the commercial possibilities of these two strands of work are being actively explored by the commercial partners”</td>
<td></td>
</tr>
<tr>
<td>ASP-VH “web-enabled tool housing three databases (i) is intended to provide UK SME’s with advice and guidance on adopting the ASP solution”</td>
<td></td>
</tr>
<tr>
<td>MAKING GAMES – NB no result page on PACCIT website, results of game authoring with Immersive Education elsewhere</td>
<td></td>
</tr>
<tr>
<td>EDRAMA moving towards developing further the edrama software/system of a company (Hi8us) and making it usable more widely, e.g. working toward developing it as a tool for a region’s healthcare training, hope to do more, e.g. work with Maverick TV</td>
<td></td>
</tr>
<tr>
<td>developed prototype E-drama tool allowing on-line improvisation, first trial conducted</td>
<td></td>
</tr>
<tr>
<td>HOMEWORK developed software and a plan for commercial exploitation, teachers at main school where testing took place would like to do more, if funding</td>
<td></td>
</tr>
<tr>
<td>“exploring possible exploitation routes following professional advice provided via the PACCIT Programme, including possible links with technology manufacturers”</td>
<td></td>
</tr>
<tr>
<td>developed tablet PC based learning system, trialled</td>
<td></td>
</tr>
<tr>
<td>APPLE “production and trial of a prototype LE (Learning Environment)”, also insight into learning disability user groups</td>
<td></td>
</tr>
<tr>
<td>Also—ongoing dialogue with consortium partners, exploration of possible exploitation etc.</td>
<td></td>
</tr>
</tbody>
</table>
dissemination highlight, APPLE being invited to present at WWW consortium in US

also mentioned APPLE presentations to BBC, British Standards Institute, local authorities, House of Lords. Invited to take part in BSI's web accessibility consultancy group – a key body.

developed prototype LE, trialled in 5 classes

ROLLOUT created “a novel production planning and scheduling system”, testing with commercial partners

“One consultancy agreement has been drawn up to support deploying the research prototype in the commercial partners’ bakeries” ROLLOUT

ROLLOUT – “The bakers also began to extend their use of the tool beyond the functions covered in training. The commercial partners are keen to have the system tailored to their own needs and installed in their bakeries. To support these applications of research, a number of exploitation routes are being explored, including a consultancy service offered on a commercial basis to the bakeries.”

Annex noted that success of early project “Applying principles of representational design to humanise automated scheduling systems” “led directly to the collaboration with the bakery industries in the PACCIT LINK ROLLOUT project”.

prototype bakery scheduling tool tested, soon to be tested in live commercial bakery

LBS4all evaluated trials of a prototype LBS4all system. Gave feedback on LBS design for mobile devices to Ordnance Survey; sees opportunity to bring technology to market. Also, a featured project in DoH Parliamentary Report on R&D in assistive technology

noted upcoming LBS4all user engagement event to be held May 06 at Royal Geographical Society
ACE design and development of a prototype information appliance to support medical shift handover

ART a working system on a wheelchair, now with followon EPSRC funding working toward a demonstrator system with companies

ESPACE built an innovative work space, the “eTable”, exploring with company/ies expressing interest

innovative prototype, refined through study in workplace

ESPACE place in international trade shows, evaluated in use at leading travel agency, “negotiations took place with a major international travel company to develop the eTable into a new system for the travel industry” (Note: this does not appear to have gone onto resolution into a commercial system/product)

The Way we Were developed a novel browser to handle digital photographs

“a prototype digital photographic browser was produced”

Socio-technical Systems Design: a flexible tool for dragging on knowledge re technical and business processes involved in ICT development

Applying principles of representational design: software systems built to use new representational systems, HuSSH workbench/tool kit developed for exploration

REACT development and early evaluation of planning software REACT (Risk, Events, Actions and their Consequences over Time); collaborating with several clinical users hoping for further full
<table>
<thead>
<tr>
<th>Technology Development Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Examples of user interactions, events, guest presentations etc.</strong></td>
</tr>
<tr>
<td><strong>EADVICE</strong> met with Financial Services Authority, which expressed interest</td>
</tr>
<tr>
<td>E-ADVICE (Chater) discussions with FSA on providing accessible on-line financial advice</td>
</tr>
<tr>
<td>“Through a collaboration with the BBC’s The Human Mind programme, the (E-Advice) team were able to engage thousands of viewers across a wide age range to participate in a series of on-line studies of financial decision-making, and to feed the findings back into the development of their on-line financial system, E-Advice.”</td>
</tr>
<tr>
<td>HOMEWORK  BBC news report</td>
</tr>
<tr>
<td>HOMEWORK – “active and excellent participants in several high profile PACCIT seminars for commercial and policy audiences”</td>
</tr>
</tbody>
</table>

- **evaluation studies. Discussion s with NHS National Programme for IT, software is part of a package being considered for NHS**
- **REACT discussions (Jones) with NHS Direct On-line re helping on-line patient information resources**
- **REACT software is part of a package being considered by NHS for national clinical software infrastructure**
- **REACT discussing, hoping for further evaluation studies**
- **MAGIC: “design, implementation and distribution of a new whiteboard tool for carrying out and analysing experiments on graphical communication”. Actually mentions not only developing but also patenting “new technologies that use graphical interaction to enhance remote communication”**
- **SKILLSUM prototype system for feedback on online skills assessments developed and tested with 100 learners**
APPLE “dialogue established with United Nations and World Bank representatives regarding strategic response to UN Development Goals for Inclusive Education”

APPLE “Associated consultancy work has resulted from the Project with the BBC, Social Care Institute for Excellence (SCIE) and a West Midlands consortium of Learning Disability Partnership Boards”

BLISS discussed policy implications of project findings on passenger perceptions with Dept of Transport

cited BLISS (Webster) discussions on policy implications with DoT

ROLLOUT conducted a demonstration in Campden and Chorleywood Food Research Association Open Day with many business people

Director participated in Foresight Cyber Trust and Crime Prevention Project Advisory group, sponsored by Home Office and targeting policymakers. Also Royal Academy of Engineering expert group generating report on Dilemmas of Privacy and Surveillance

Director gave evidence to House of Commons S&T Committee on identity card technology

gave input to OFCOM report, apparently drawing in part on VISTA experience.

<table>
<thead>
<tr>
<th>Conferences etc aimed at users</th>
<th>IN TOUCH 2 half day industry sessions (fee charged); conference workshop: ‘games and social networks’, presentations; talk at BT/PACCIT seminar 13/10/05</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EDRAMA presentations at PACCIT events, also</td>
</tr>
<tr>
<td>Connectivity</td>
<td>LINK and LINK-like developed 41 formal research collaborations with non-academic entities</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>PACCIT via yearly event and seminars reached out to additional possible users (e.g. 13 October 2005 seminar co-sponsored by BT); also over half of website hits were from commercial entities</td>
</tr>
<tr>
<td></td>
<td>Director and ESPACE talked/demonstrated at large PACCIT RSA seminar, many at shared seminar w/ BT, and ending seminar w/ many, Royal Society – many users attended these and others beyond annual major user engagement events p17-19 (Note: “internal” e.g. Methodology Workshops &amp; shared/open events described at <a href="http://www.paccit.gla.ac.uk/public/events.php">http://www.paccit.gla.ac.uk/public/events.php</a>)</td>
</tr>
<tr>
<td></td>
<td>noted non-academic participants in PACCIT events, e.g. in Nominated Dissemination Highlight, ‘Fun and Games and Learning’ seminar in partnership with BT, 13/10/05</td>
</tr>
<tr>
<td>Secondments</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>---</td>
</tr>
<tr>
<td>Non-academic employment</td>
<td></td>
</tr>
<tr>
<td>Additional non-academic funding</td>
<td>ART follow on funding from EPSRC Design for Interaction and Collaboration – invitations for exhibits, commissioning etc. (Craft Council &amp; DTI funded researchers for two commissioned collaborations with artists.) REACT – funding from Cancer UK</td>
</tr>
<tr>
<td>Obstacles/issues: Mgmt Programme or Projects</td>
<td>timescales of application process; preparing/evaluating research applications, paperwork multiple funding bodies, procedures, issues with application processes, etc. constraints in spending public money (ACE—consent from Trust to test was unavailable during 1 year pilot project) (Investigating the impact of tailored reports on anxiety – local cancer services were reorganised during research) (Effective decision support in the neonatal intensive care unit; found complexity – “Supporting management strategies with a sophisticated clinical guideline is more complex than supporting individual decisions and as a consequence, we were unable to demonstrate a working system”. But did more toward generating advice on how to write guidelines) noted difficulties/delays faced by ART when several successive collaborators could not meet DTI's funding requirements. noted BROADBAND encountered difficulties in “an extremely volatile market sector” such that several companies ended up being unable to commit to LINK constraints considerable project management skills called for to (for example) produce a prototype IT system, trial and refine it</td>
</tr>
</tbody>
</table>
considerable reporting requirements for LINK projects; end of award reports and evaluation, both LINK and ESRC
also need to publish in high quality journals, so multiple, sometimes competing objectives

<table>
<thead>
<tr>
<th>Obstacles/issues: U/non-academics</th>
<th>prior to LINK, no contract or identified exploitation plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“time and effort to understand one another”</td>
</tr>
<tr>
<td></td>
<td>time and commitment</td>
</tr>
<tr>
<td></td>
<td>rapid turnover often in non-academic partners’ staff</td>
</tr>
<tr>
<td></td>
<td>RAE issues</td>
</tr>
<tr>
<td></td>
<td>LINK process can be a “cost &amp; constraint” for non-academics</td>
</tr>
<tr>
<td></td>
<td>“disadvantages” elicited re academic/non-academic collaborative interactions: “different perspectives/time scale”, “commercial relevance vs academic depth” balance, “bureaucracy costs of coordination”, “bureaucracy of the funding model”, “lack of support for further commercialization”</td>
</tr>
<tr>
<td></td>
<td>multiple projects had changes of company personnel and/or significant organisational changes during the project; the sector itself was volatile</td>
</tr>
<tr>
<td></td>
<td>noted that LINKlike partners did not have formal requirements to “take responsibility for future exploitation of the findings, as is required of LINK commercial partners”</td>
</tr>
</tbody>
</table>
ANNEX G: Media Analysis

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ROLLOUT</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E-ADVICE</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MAKING GAMES</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>HOMEWORK</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>E-DRAMA</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Search strategy (1999 and later)
1. PACCIT
2. Full title of project
3. Abbreviated title
4. PI name
5. Name of non-academic partner organisation

THE
1. Five mentions of PACCIT but all just advertising funding rounds or events
2. ‘Schools are irrelevant in a world of digital media’
   "Schools are becoming increasingly irrelevant to the modern child as a result of their failure to embrace the digital media, a leading expert on youth culture will warn in a lecture tonight. "Compared with the complex multi-media experiences some children have outside school, much classroom work is bound to appear unexciting," Professor David Buckingham, head of the Centre for the Study of Children, Youth and Media at London University's Institute of Education will say.

The Independent cited in THE 9 November 2005

New Scientist
1. No findings

Guardian
i. References to PACCIT per se not found.

E-ADVICE
   refers to Nick Chater as director of the Institute of Applied Cognitive Science, Warwick, “conducting research on behalf of a financial institution eager to know what motivated its customers. He was specifically looking into the psychology of what made customers make investment decisions.” NO reference to PACCIT or centre funding of that sort 29/1/01

MAKING GAMES
2. [http://www.guardian.co.uk/education/2006/jan/10/elearning.technology4](http://www.guardian.co.uk/education/2006/jan/10/elearning.technology4)
“The jury is still very much out over Cots games' capacity to deliver core curricular knowledge about subjects such as history or modern languages. “Danish research shows that playing Civilisation III, for example, did little to increase students' grasp of their nation's history,” says Andrew Burn, senior lecturer at the Institute of Education at London University.” …

“It represents more than two years of collaboration between the Institute of Education and educational software company Immersive Education...... The Making Games project has developed MissionMaker - a tool that enables pupils to create a 3D environment populated with characters and objects and governed by rules of their own devising," says Immersive's chief executive, Chris Lloyd.”

10/01/06

3.  http://education.guardian.co.uk/appleeducation/story/0,,1682548,00.html

“However, a whole different approach is emerging that sees the technology on which games are built being used to enable children to create their own games, stories and dramas. For example, researchers at the Institute of Education have teamed up with Immersive Education to explore how to use games software to enable school children to write their own computer games.”

4.  RELEVANT article: http://www.guardian.co.uk/technology/2004/oct/27/schools.elearning  27/10/04

“Far from being an obesity-inducing, violence-promoting threat to society, as they are often portrayed, the games being played in bedrooms across the country during half term can be used in the classroom to help children learn concepts such as critical appreciation of narrative structure or character development which they might otherwise study in a novel, say academics at London University's Institute of Education.

Research into games, conducted by the institute's Centre for the Study of Children, Youth and Media and partly funded by the Department for Trade and Industry, also suggests youngsters could develop their literacy skills by writing games programmes as well as studying existing ones.

Caroline Pelletier, who is managing the project, said: "Like all games, computer and video games entertain while promoting social development, and playing and talking about games is an important part of young people's lives.

"Game literacy is, as a way of investigating how games are means of expression and representation, just like writing or drawing."

Researchers, who presented their findings at a seminar in London last night, believe games deserve to be treated by schools with the same seriousness as books and films. Andrew Burn, the associate director of the children, youth and media centre, said: "Games are a cultural form that is just beginning to evolve and the evidence is they can be every bit as rich and complex and nuanced as a book or a film." The perception that computer games are predominantly violent and bloodthirsty - a view perpetuated by explicit links
with games in some murder cases - is incorrect, the researchers say. Many involve imaginative role play, while in the biggest selling game of all time, The Sims, players construct virtual families. "You just put the characters together in a house and keep them happy," Dr Burn said. "People who don't know about games obviously have a distorted and reductive view of them." …"As part of their continuing three-year project, academics worked with children at Charles Edward Brooke School in Lambeth, south London, using traditional games such as snakes and ladders as well as computer games to encourage the youngsters to consider the challenges and game principles lying beneath the stories involving Lara Croft and other anatomically unlikely characters. ““

5. RELEVANT ARTICLE
http://www.guardian.co.uk/technology/2004/oct/26/elearning.games quotes Caroline Pelletier as a manager of a study on how computer games can be used in the classroom, with two studies to present their findings “at a seminar in the capital” 26/10/2004

"Like all games, computer and video games entertain while promoting social development, and playing and talking about games is an important part of young people's lives. "Game literacy is, as a way of investigating how games are means of expression and representation, just like writing or drawing." "By developing game-making tools, players can become producers as well as consumers of games, writers as well as readers."

6. RELEVANT Mention of Institute of Education & Immersive:

“Exploiting the persistent fascination with computer games, the school is involved in a research project with Immersive Education and the Institute of Education in which children author a game. One of Parkside's longer-term aims is to enable students to design their own games for incorporation into other subject areas. "For example, children might create a game to further their understanding of a particular period in history or one which explores bullying or racism or other topics,” says Durann. "The scope is endless." “
http://education.guardian.co.uk/appleeducation/story/0,,1720885,00.html 1/3/06

7. RELEVANT: 18/11/03 article titled “Rules of play: how students learn to take control”

“At Parkside community college in Cambridge, a group of pupils has just completed a six-week project overseen by academics from the Institute of Education and the software producer, Immersive Education (IE). Their focus was on the peculiar form of literacy required of players of computer games. Now a second group is working on creating games "authoring" software, allowing the year 8 pupils the sort of creative control enjoyed only by designers immersed in highly complex programming algorithms."
http://www.guardian.co.uk/education/2003/nov/18/elearning.technology3

8. NonPACCIT refs to Buckingham, in policy context:
http://www.guardian.co.uk/education/2008/jun/20/schools.uk2 NOTE: 20/6/2008 Guardian article refers to current policy-influencing role of Prof David Buckingham (not PACCIT-specific, but influential role:

“…secretary of state for Children, Families and Schools, presented himself as something a bit different from the pack of New Labour "free
market" dogmatists - particularly by commissioning an inquiry by Professor David Buckingham of the Institute of Education into all aspects of the role of private sector companies in our state schools - from advertising and vending machines in school corridors, through the commercialisation of the curriculum, to the ownership and control of our schools by individual millionaires and big business via the academies programme and similar privatising initiatives."

http://www.guardian.co.uk/media/2003/nov/10/mondaymediasection.schol

report noting an earlier report (2003) by Buckingham: Young People, Media & Personal Relationships, commissioned by the Broadcasting Standards Commission, Independent Television Commission, British Board of Film Classification, BBC and Advertising Standards Authority, produced by Professor David Buckingham and Dr Sara Bragg, Institute of Education, London University Another 2003 article cites him “Professor David Buckingham, director of the Centre for the Study of Children, Youth and Media at the Institute of Education in London, has researched children’s politicisation extensively.”

http://www.guardian.co.uk/politics/2003/apr/26/schools.antiwar

http://www.guardian.co.uk/education/2008/may/19/schools.uk quotes from Buckingham re his upcoming report on commercial influences in children’s education 19 May 08 “Commerce in schools put under spotlight”

9. Non-PACCIT but Possible dissemination (generally): An article by Burn and others cited at the end of an article about a NESTA Design Challenge for schools etc to design games: Why should we study Video Games? by Andrew Burn, Diane Carr and Gareth Shott

http://www.guardian.co.uk/education/2004/mar/09/elearning.technology10 9 March 04

10. Non PACCIT but references to Immersive Education:

Did NOT mention research, but did mention Immersive Education

http://www.guardian.co.uk/education/2008/mar/18/link.link5/print Also mentioned a recent report Teaching with Games 2007 by education research group Futurelab

futurelab.org.uk – did this cite PACCIT work??

Brief mention of Immersive Education as providing a good platform for the education sector

http://www.guardian.co.uk/technology/gamesblog/2007/sep/11/gettingserious2 A review of games includes Immersive Education:

http://www.guardian.co.uk/education/2007/jun/19/elearning.technology20 Mission Maker 07 Chris Drage says “Handled correctly by a sensitive, well-organised teacher, MissionMaker can help develop, problem-solving, decision-making and strategic thinking. The only limit is the imagination of the game creator.” An article on Religious Education and ICT resources speaks positively of Immersive Education:

"Also encouraging creativity is Kar2ouche from Immersive Education - another multimedia, cross-curricular resource that encourages children into discussion, role play and trying out ideas. The key stage 2 unit, Understanding Religion, has five sections, some designed to challenge, such as How are People Inspirational? There are secondary titles, too, including
Learning from Religion for KS3, which Myers Grove secondary in Sheffield used in a year 7 RE project on forgiveness. The children produced some thoughtful and often touching storyboards - in one, a girl has to own up to losing a friend's necklace, and we go with her in picture story format as she faces up to confessing to her friend and seeking forgiveness. Kar2ouche is a deep and wide package that merits a careful look. The units mentioned here cover secondary and primary, serving the whole curriculum, with more appearing each year. The annual cost for what is a full service, including all the units and annual training, starts at about £650. Teachers know that religion is an area where web sources, to say the least, are not always reliable. The starting point, then, for any exploration of ICT in RE is the RE Online website, from Culham Institute, which is surely one of the best subject-centred web support networks to be found in any curriculum area. It's clear, written by people immersed in the subject and at home in the classroom, and replete with links to reliable curriculum, faith and resource sites."

http://www.guardian.co.uk/education/2006/dec/12/elearning.technology36  12/12/06

Another mention of Immersive in an article on “The Shape of Things to Come” “Bett is the launchpad for Immersive Education’s MissionMaker (from £995), a program that allows students to create their own 3D computer games. Pupils can build a professional-quality game for a younger class, with proper research to ensure their characters are authentic, and get a buzz from seeing their game played in an inter-school league. MissionMaker helps build ICT skills from year 5 onwards, and is even used by undergraduates. Teachers can be games authors, too. Games can be published online at the MissionMaker swapshop, and played by anyone who downloads the free Player software.” 12/12/06

http://www.guardian.co.uk/education/2006/dec/12/elearning.technology17  and another article on the same day: “You can also catch up with developments in education games at Bett. Try offerings from Immersive Education, where there is still time to sign up to become an early adopter of MissionMaker, enjoying a range of benefits including on-site training (£995). The resource is destined to achieve even greater relevance in 2007 with the launch of a new games authoring course, the Diploma in Digital Applications.” 12/12/06

http://www.guardian.co.uk/education/2006/dec/12/elearning.mediastudiescommunicationsandlibrarianship

Report on EIEF session on whether games can be good for you, includes comments from Jeff Woyda of Immersive on the panel

17 aug 05  http://browse.guardian.co.uk/search?search_target=%2Fsearch&fr=cb-guardian&search=%22Immersive+Education%22&N=

Mention of an Immersive product
http://www.guardian.co.uk/education/2005/may/10/teaching.schools1  10/5/05  and
11/1/05

http://www.guardian.co.uk/education/2005/jan/11/elearning.schools4  and in an article, reference
http://www.guardian.co.uk/education/2004/sep/28/elearning.technology10  28/9/04
and a reference in an article about BETT conference (British Educational and Training Technology ) “Some fascinating new tools beckon from companies developing games for the education world. Immersive Education (D70) has come up with a range of titles from Macbeth through to PSHE which harness the engagement and immersion of games. It is now moving beyond Kartouche, a 3D story-boarder, to
Tableaux, a real-time 3D world users can build, populate and then explore. “ 6/1/04 [http://www.guardian.co.uk/education/2004/jan/06/elearning.technology6](http://www.guardian.co.uk/education/2004/jan/06/elearning.technology6) and review of Krucible 6/1/04 [http://www.guardian.co.uk/education/2004/jan/06/elearning.schools3](http://www.guardian.co.uk/education/2004/jan/06/elearning.schools3) and a physics package, Energy [http://www.guardian.co.uk/education/2003/mar/11/elearning.technology11](http://www.guardian.co.uk/education/2003/mar/11/elearning.technology11) cited briefly in 11/3/03 and 7/1/03 review re conference exhibit: “Immersive Education has already set a new standard in classroom interactivity with its Kartouche series for Shakespeare, allowing students to manipulate characters on screen and literally put words into their mouths. Its new Krucible software aims to provide a virtual lab on the computer screen, allowing students to experiment with ripple tanks, light sources and waves. Krucible will cover science topics for key stages 3, 4 and 5, including energy, forces, waves and optics (stand D72).” [http://www.guardian.co.uk/education/2003/jan/07/elearning.technology2](http://www.guardian.co.uk/education/2003/jan/07/elearning.technology2) and mention of Immersive’s language products 6/12/02 [http://www.guardian.co.uk/education/2002/dec/16/elearning.highereducation](http://www.guardian.co.uk/education/2002/dec/16/elearning.highereducation) Reference to Oxford (not PACCIT) 13/11/01:

“Kar2ouche is the product of a most creative collaboration between Intel and the Department of Education at Oxford University and the results are staggering. The software designed enables children to animate four of Shakespeare’s plays - Macbeth, A Midsummer Night’s Dream, Romeo and Juliet and Hamlet.

What is unique about these CD-roms is that they combine the best of game technology with a real sense of educational purpose. And this was Intel's chief aim when it set up Immersive Education, now an independent company wholly responsible for Kar2ouche. As Chris Davies, lecturer in education at Oxford, who was brought into research the development of the product, says: "Too much educational software is just books on screen or worse, designed to be teacher-proof. Intel was very keen to produce something that had the dynamic of a classroom in mind. So that's what we set about trying to create with the help of a team of teachers." “ [http://www.guardian.co.uk/education/2001/nov/13/itforschools.schools5](http://www.guardian.co.uk/education/2001/nov/13/itforschools.schools5)


**HOMEWORK**

11. Rose Luckin quoted on Augmented Reality work at BBC, appears relevant to her profile but NOT PACCIT work : “As well as using AR in story-telling, the team has worked with teachers to develop prototypes for teaching science. Rose Luckin, professor of learner-centred design at the Institute of Education, has been evaluating the BBC's work. She believes this is an area where AR has a particular strength: "It has the potential to allow access visually to concepts that are difficult to understand." “ [http://www.guardian.co.uk/education/2006/mar/07/elearning.technology15](http://www.guardian.co.uk/education/2006/mar/07/elearning.technology15) 7/ 03/06

**E-DRAMA**
12. **NON** PACCIT per se, but Hi8us so perhaps related? “Developed at Hi8us Projects in Birmingham, edrama has been funded by Nesta (National Endowment for Science Technology and the Arts). Kulwant Dhaliwal, the edrama coordinator at Hi8us, estimates that the project is still about a year from completion. There are many things that the developers find exciting.” 11/06/02 [http://www.guardian.co.uk/education/2002/jun/11/itforschools.schools3](http://www.guardian.co.uk/education/2002/jun/11/itforschools.schools3)

Not necessarily PACCIT but Hi8us: “l8r (pronounced "later") from the online drama project, hi8us, recently won the UK Royal Television Society Education Award. It covers topics such as parenthood, peer pressure and drugs. Schools receive videos with short episodes featuring six characters from different backgrounds. An integrated website allows pupils to enter into dialogue with the characters, get more information about the problems featured in the programmes, and above all, vote.” 15/11/05 “How to make kids take some notice” [http://www.guardian.co.uk/education/2005/nov/15/elearning.technology9](http://www.guardian.co.uk/education/2005/nov/15/elearning.technology9)

13. **NON** PACCIT but Barnden: “The mind-as-container metaphor would certainly look familiar to many modern psychologists. The computer scientist John Barnden has collected together some common mind-metaphors in his online databank ([www.cs.bham.ac.uk/~jab/ATT-Meta/Databank](http://www.cs.bham.ac.uk/~jab/ATT-Meta/Databank)), a glance at which suggests that physical, static conceptions (such as of ideas as possessions, or as graspable external entities) still dominate contemporary talk about the mind.” [http://www.guardian.co.uk/books/2005/oct/15/scienceandnature.society](http://www.guardian.co.uk/books/2005/oct/15/scienceandnature.society)

14. **NON** PACCIT but BT: in article “For Gaming, Read Learning”

“Dan Ballin, radical multimedia manager for BT's research labs, Btxact Technologies, says parents often buy their children computers for educational reasons only to see them being used mainly for games. "This is not necessarily a bad thing," he says. "It's building their confidence and, in terms of social skills, there's quite a lot hidden behind computer games."

Playing PC games increases PC literacy, and Ballin says that "when they need business skills, their familiarity with IT is of quite a high quality".

Games are also at the forefront of advanced computer technologies such as graphics, user interface design, face tracking, motion-capture, and use of artificial intelligence.

Ballin is involved with such techniques and the use of "avatars"- graphical figures that represent the player and move around in the game under the player's control. Avatars are a topic covered in BT's 22nd annual lectures to schools, which are being held from November 19-23.” 13/11/01 [http://www.guardian.co.uk/technology/2001/nov/13/games.education](http://www.guardian.co.uk/technology/2001/nov/13/games.education)

**Times**

**HOMEWORK**

15. Rose Lucking referred to, but probably not PACCIT research:
“Rose Luckin, Professor of Learner-Centred Design at the London Knowledge Lab and a visiting professor at the University of Sussex, is working on a study examining the internet’s impact on pupils’ critical and meta-cognitive skills. “The worrying view coming through is that students are lacking in reflective awareness,” she says. “Technology makes it easy for them to collate information, but not to analyse and understand it. Much of the evidence suggests that what is going on out there is quite superficial.”

http://women.timesonline.co.uk/tol/life_and_style/women/families/article4295414.ece

3 non-relevant Times references:

Buckingham: couple of general quotes on his role at IoE:

http://entertainment.timesonline.co.uk/tol/arts_and_entertainment/tv_and_radio/kids_tv/article3176596.ece
and http://www.timesonline.co.uk/tol/news/article882585.ece

Barnden signatory to letter re Bletchley Park preservation
http://www.timesonline.co.uk/tol/comment/letters/article4385384.ece
Computer Weekly

Not specifically PACCIT-relevant
Immersive Education Ltd two similar mentions for award:

&sid=e6679be5-3858-4082-a0ba-32c6d832fac4%40sessionmgr109&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=buh&AN=8839616
A system enabling students to direct and animate Shakespeare plays, develop
stories around bullying and drugs, explore science through the eyes of Darwin and
Newton, and take the role of a French waiter to learn language won a BCS IT Award
for Immersive Education.

The company was born out of research by Oxford University's Department of
Educational Studies, Intel, and some games companies.

Its Kar2ouche system provides three-dimensional backdrops, characters and sounds,
and students can scan in their own pictures. Different poses can be attached to
characters and animation is possible.

“The aim is to unlock children's creativity through information and communications
technology,” says chief executive Chris Lloyd.

“Kar2ouche provides highly visual environments that students can control
themselves, allowing them to live inside their subjects and learn through exploration
and discovery.”

About 800 schools have taken the system in the first year.

The three award winners were chosen during a judging day from nine finalist medal
winners, which had been whittled down from 68 entries through a process involving
site visits.

The BCS Awards were sponsored by British Telecom, the Department of Trade &
Industry, IBM, KnowledgePool, Logica, PricewaterhouseCoopers, Royal Mail,
Shopcreator and Text 100.

- Full details of the awards are at www.bcs.org/itawards
- www.sealedmedia.com
- www.isabel.org.uk
- www.immersiveeducation.com
ANNEX H: Lessons Learned: Good Practice Suggestions

1. Lessons learned for Programmes

   Positives & Negatives

Multiple features of the PACCIT Programme were commended, as good practice for other such programmes in the future:

- Good management of the Programme
- Networking activities and programme events, community-building
- Bottom-up commissioning of research.

On the other hand:

- A less onerous administrative burden was recommended, even/especially if programmes have multiple sponsors, in order to give teams more time for their other activities.

   Duration

In commending the Programme for helping to fund “some ground breaking research in our case that was too speculative for commercial funding but too applied for traditional research grants”, one respondent offered the overarching lesson “there is a very real gap there that this programme is well suited to address”. Even so, duration of time could be improved:

- “no financial support long term means that (the) programme only goes as far as the project end”
- projects should be funded for longer duration, e.g. five years.

   Practicalities

Fine-tuning suggestions were also made:

- Particularly if (as was the case with PACCIT) multiple funding bodies have different styles, “be very clear about the goals” of each funding body.
- Provide “systematic support for project management”, proactive assistance early on rather than emphasis on reporting.
- “It would be useful if the Programme staff could act as a source of reassurance to companies that the academic partners are not out to steal their ideas and that they are strictly bound by the collaboration agreement”. (offered by a respondent that had a negative experience with a company partner which refused to allow modification of its prototype code, hampering the project and its own prospects for improved IP)
- Recognise that smaller companies in particular may find funder reporting and financial management a burden, and provide tools, project management resources and/or advice for these aspects of a project.
- “Help companies stay in the network (long-term), including building relationships with other companies in the network as well as with the academics.”
- “It could be useful to have next generation researchers participate in some of the broader aspects of the Programme and discussions about what works and what doesn’t.”… for instance “have overarching programme events bringing in people to talk explicitly about tensions and challenges and benefits of working between academics and non-academics”.

Technology Development Group
2. Lessons learned for academic project leaders, researchers

**Project Management**

Project management, ensuring that all participate as needed, was the focus of multiple lessons learned:

- You “definitely need one person nominated to coordinate work of all disparate parties”.
- “In a variegated project with several qualitatively different lines of work it is a good idea to have an academic in charge of each line” (rather than one person trying to run everything and calling in academics only in an ad hoc way).
- “Establish an authoritative project management office that ensures the timely contribution of all parties of the agreed outputs and quantified effort. The danger otherwise is that the PM office develops a role of either covering for poor performance or brokering and pacifying around arguments that result in these being brought to the programme leader's attention”.
- “Keep project scope and ambition simple from the start - it will get complicated anyway once work progresses!”
- “Plan deliverables more carefully, don't plan too many in too short a time, allocate time for reflection and writing up results.”

**People Management**

Challenges of people management in complex boundary-crossing projects gave rise to several lessons learned by survey respondents:

- “It can be problematic when we academics take the overall project management”
- “The relationships with potential commercial exploitation partners are difficult to establish and grow due to obvious differences in objectives.”
- Perhaps “handling industrial partners might require additional training?”
- “I would recommend academic researchers to make extra effort to explain the rationale for their research activity to the non-academic partners to highlight the elements that have genuine potential usefulness to the business - as well as to help them understand the value of research that is less applied and more about contribution to a discipline's knowledge base that is more theoretical or abstract.”
- “Academic partners, especially from other disciplines, can be very difficult to work with. Synergies are not easy to achieve.”
- “Careful attention should be paid to time commitments, with greater assurances from co-Is (co-investigators) about their contribution to dissemination”.
- “Don't have too many famous professors on your project team who have fingers in too many pies and are not 100% committed to the project!”
- Provide opportunities for researchers to share issues confidentially, e.g. through skype conferencing.

**Managing approaches & resources**

Managing not only resources but different approaches was highlighted:

- If the role of the partners is ill-defined, a project could benefit “from a more balanced control of resources”.
• “It is particularly hard to piggyback fundamental research on applied research”
• “There needs to be closer links between how the firms’ and academic roles work together”.
• Since “timing is essential”, “try to prevent any blockages between the partners, which may come up due to different ways of working”.

Planning for change

Overview interviewees also offered good practice suggestions for projects. For example, advice from an industry interviewee would be to
• Build a Plan B upfront to manage sudden changes in corporate partner plans/commitment, even “make a virtue of industry change… embrace the fact that there will be these changes”.

Post-project Activity

The critical nature of post-project activity was discussed by several respondents (including the need to “factor in the amount of time/resource needed to contribute to post programme evaluations!”)
• Support is needed for “nearer market” development, translating even promising technology into practical use, since this stage is “not the usual responsibility of academic researchers”.
• Emphasise practical relevance, so that academic publications are just some of multiple project outputs.
• “Follow(ing) up the real opportunities generated with industry at end of project- i.e. opportunities to discuss how to build on impacts and possibly how where/if follow on funding is possible”.
• As a responsibility of academics relative to evaluation, “Be honest about obstacles, don't hide them behind a veneer of success. One of the problems with policy about new technologies is that it doesn't acknowledge the difficulties inherit in embedding them - it's the job of academic researchers, especially social scientists, to make these visible.”

3. Lessons learned for non-academic collaborators

Management & Collaboration

A central lesson was articulated by a survey respondent:
• “Non-academic impact is more likely to arise from work involving non-academic collaborators. Thus projects should include such collaborators if the aim is to generate non-academic impact.”

Advice concerned the importance of non-academic roles regarding a point person and/or management:
• “Need one main liaison person in academic and commercial parties and both need to have sufficient experience and seniority in order to effect actions”
• Have “a named person; risk management strategies for when organisations/people and consequent commitments change mid-project”
• “Find a collaborator with experience of managing large DTI projects to take the managerial lead.”
Challenges faced by Non-academic Partners

Some lessons offered by respondents had to do with ramifications of distinctive challenges faced by companies – external influences, acquisitions, closure, priority shifts, changes in personnel. Related advice includes:

- “Acknowledge that the real world impacts more dramatically on non-academic partners and can radically change their circumstances within the lifetime of the research project”
- “Projects should be perhaps shorter and more focused in order to minimise the chance of such disruption” (e.g. acquisition of collaborator)
- “Have stronger commitments from the outset for collaborations to endure”.

Communication

In the face of differences ("do not underestimate the different interests of the industrial partners"), other lessons emphasised communication:

- “Discover what they can gain from you before asking for their contributions. Try to find an enduring point of contact.”
- “Only a very explicit project design and plan can ensure that all parties share the same view of the workload and delivery requirements - especially where the differing cultures of business, voluntary sector and academia use similar jargon - but sometimes mean different things! i.e do not underestimate the need for time intensive effort around communication.”
- “Make sure the research ties in with long term corporate goals.”
- "I personally felt there is a significant fundamental tension between doing the right research and meeting industrial goals. My perception is that this is normally seen as a failure by academics to understand the demands of business and markets. However, I think there is equally a problem that potential industrial partners don't always understand the research process or what its most significant potential benefits might be."

4. Participants’ recommendations to future funders

Priority: Post-Project Support to Transform Research into Impact

As noted in the body of the text, survey respondents were asked to select the most important from among six types of actions that funding bodies could in theory employ to facilitate the generation of impacts from research, while also continuing to promote research excellence. By far, the single action selected most often was chosen by more than half of the recipients:

- Follow-on funding for knowledge exchange/dissemination or further research collaboration

When the related “Help with follow-up” is included, two-thirds of the survey respondents are represented. Thus funding bodies may want to consider this possible action seriously for schemes in the future, given the emphasis placed upon it by respondents.

Free text comments in the survey responses showed sensitivity to challenges in the transformation of research into tangible impact. Post-project funding, even fairly long-term, was recommended to help follow up opportunities with industry:

- Recommending that funders follow up opportunities at the end of project, one respondent noted for instance that it "seems ironic that there is an emphasis"
on the impact of funding, and there are many associated impacts in this case without funding that could/should be followed up”.

- “What would have been nice is a fast-track route to money for the two SMEs to do further development that could have been done under our academic guidance”.
- “Once the product of the collaboration is commercially available, there is still a need for further research and input to develop KT (knowledge transfer) opportunities”.

Interviewees emphasised this point as well, for example:

- “Do not expect quick results. Therefore, have a small pot of money as a mechanism in place for ongoing action. This could allow a fledgling effort to go on pursuing impacts.” For example, enabling ongoing communication, perhaps through a person working on this one day a week, would make a huge amount of difference for some projects. (Not all projects would apply for this post-project pot.)
- (as noted by the above academic’s non-academic partner) Despite commercial relevance, “a gulf opened up between the research and actually having the capital to get to go through the exploration to help you get there. Had the project been funded all the way through it could have had much more of an impact.” “The frustration is that you get somewhere really interesting and you cannot go any further… it should be a laudable aim to continue an exploration rather than to keep starting a new one… It would be good to have money for subsequent applications, even if some of that happened to be repayable if the project succeeded… Another reason this would make sense is that a good bond can be built up between the non-academic and the academics and it would be good to find ways to carry it forward.”
- Recognise that, while non-academic collaborators may well want something that they can use as a product of research, a substantive gap exists between the end of a research project and actual use. Activity in the middle is not usually in the best interests of an academic’s career. It may be important to provide more funding to move academic research findings to a usable end-product (such as a software package), and/or to help find someone who can make money from doing so. This could include government helping those willing to take a risk to bring about exploitation. “This will give you the chance to jump the abyss between research and a commercialised product!” A wider range of non-academic partners would thus be more likely to benefit, possibly with only a finite subsequent investment required for tailoring the product to their particular needs.
- “Help companies continue to stay in the network including building relationships with other companies in the network as well as with the academics.”

**Practical Points**

Several other thoughtful comments were offered by survey respondents and interviewees in terms of process:

- “The choice of Director is crucial” (as is effective, dedicated administrative support for the Director)
- Paperwork simplification (“radical rationalisation”!) was noted as potentially helping: “both the academic and industrial partners would be reluctant to deal with quite such a large overhead in the future”.
- “Commercial match is a dark science” and needs to be simplified, especially for SMEs.
• Consider how jointly-funding bodies can align their requirements for managing finances, reporting and acceptable outcomes.
• (Yet) backing by more than one funder was seen as giving the Programme power.
• An academic warned against funding bodies “delegating knowledge transfer to universities as a whole” because some universities do not have effective tech transfer teams, and thus recommended that individual PIs be able to apply directly for tech transfer funding.

and in terms of pump-priming or catalysis:
• ESRC could develop a high-profile, popular communication of PACCIT, perhaps a television show/series that included “reconstruction of the emotion, excitement of the relationship-building, why some failed – with technology creep and products unforeseen by companies, the role of knowledge” and so on.
• Funders could think about basing grants on both merit and “the interdisciplinary calibre of the academic and business people who are leading the project”. Perhaps a funder like DTI (now DIUS) could help UK companies distinguish/filter appropriately experienced, good quality experts. An interesting tactic would be for universities to seek this sort of grant with alumni that have risen to high levels of commercial authority.
• Funders need to be sensitive to constraints of SMEs as not all partners will be large firms.
• If in fact funders want an open range of outcomes including spinouts, for example, it would be helpful to make their broader view clear from the very beginning, that “this project is the kickstart to a set of new interesting directions and applications of your research to the outside world”.
• Funding bodies could think about whether “relying on people’s existing contacts is the best way to handle this sort of collaboration or might it be more interesting to do something like the sandpits where academics and non-academics meet together to think through some interesting projects and then build them into collaborative projects on which they actually work.”
• Maybe funding bodies could do more to prime the first stage of the process, to help build networks, to encourage pilot work. The objective at that stage could be “let’s do something small together, let’s get to know each other”. Some but not all of these pilot projects might then need greater amounts of government funding later. “Anything the funding bodies can do to make the networks better earlier would be good.”
• More risk-taking projects might be funded at least in the first instance by smaller awards.

**Evaluation**

Interviewees engaged in issues central to evaluation of impact, in particular the duration of support that might be needed during the long-term process of impact generation. One interviewee asked provocatively “Do the funding bodies really recognise the power of this sort of intangible change and how to encourage it further?” A suggestion likely to be widely approved was that “Research Councils should take this further, help it evolve even more…. Research Councils don’t seem to think about how do you take a project like this onto the next level.” There is a sense that, rather than mainstreaming what the Programme was doing, funders may be just moving onto the next thing. (However, the most recent post-Programme PACCIT workshop illustrated several upcoming funding streams, such as the Technology Strategy Board’s, that appear to have been positively influenced by PACCIT.)
The view was frequently expressed that evaluation of impacts cannot be tidied up neatly at the end of a project, with recommendations to funders accordingly:

- “Even this study is too early!”
- Avoid a naïve view of knowledge transfer as linear and simple, and “think how long you need to leave before you begin to look at substantive take-up.”
- “Look at the tangible benefits of research to industry and commerce, particularly as few academics can demonstrate this link”.
- Extent the timescale for looking for impacts to perhaps 10 years, tracing how ideas are presented… how thought has changed in academic and industry.
- “Take a longer term look, trawl for examples of benefits of this kind of mechanism, this style of interaction…. Expect to evaluate the Programme in a slightly different way, rather than just a judgement at the end… the funder looks at outputs too quickly, now.”

A portfolio perspective was recommended when evaluating “success” across a Programme:

- It may be that you need to invest in a dozen projects to get one that is worth more than one hundred times all the projects’ costs. Research organisations within companies use that model.

**Good Practice**

There was some feeling among overview interviewees that capturing of good practice could be helpful, during a programme and/or in a form of guidance that could be shared with future programmes. In a similar vein, since the (now disbanded) Senior Management Committee had such a rich view of the Programme, “understanding of the Senior Management group and the Director is a hidden resource” to help Research Councils and the TSB move on to the next level in planning. (An interesting point was raised as to timing and evaluation, in that the Senior Management Committee’s responsibilities wound down once funds were distributed, so that members did not necessarily even see all the project final reports and in particular they did not see non-academic partners’ outputs; this is perhaps a missed opportunity for an informed snapshot evaluation at programme end.) An example of good practice that funders are seen to appreciate now is the use of workshops or sandpits that the Director incorporated into the Programme. A suggested variation on bringing people together in a way that “de-risks” potential projects would be to “build in flexibility, have two stages, a fairly rapid feasibility study to make sure people can work together for a few months, then lead to a full project proposal and funding.”