

# Developing An Applied Research Programme Through Knowledge Management Co-Production: The Mouchelparkman-Cranfield Case Study

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## ABSTRACT

*This paper first describes how a joint applied research centre was established between a leading UK university management school and an international infrastructure management consultancy. It goes on to show how a research programme was devised through a co-production process, and developed in an academic-practitioner partnership using an evidence-based approach to knowledge management. Because of its innovative approach, the work in the programme is funded by a UK government research grant. The paper presents the early encouraging results from the knowledge management programme, which is now at the end of its first year, and also provides some guidelines for the successful collaborative or co-production model established between an academic institution and industrial partners.*

## KEYWORDS

*Knowledge management, co-production, academic-industry partnership, knowledge transfer, practitioner feed-back, evidence based practice, systematic review.*

## 1 INTRODUCTION: The concept and the partners

The MouchelParkman Group is a long established consultancy group of international renown, with 4500 staff. Based in the UK, it also has offices in a number of country regions extending from mainland Europe to the Middle East, and to the Far East including Hong Kong, Singapore and Thailand. Its work ranges from business consultancy and large-scale project management and advanced civil engineering design services, to the management of long-term service contracts and running out-sourced services for public and other agencies. Its clients are owners of infrastructure: government departments, local authorities, public utilities and international companies. The company has a long history of technological innovation (Burr,1997a) to which in recent years had been added a commercial acuity, enabling it to survive in the 1990s when others floundered (Burr, 1997b).

Over the recent past there has been a fundamental shift in the way the company's clients view themselves: under increasing commercial pressure, many are evaluating their core businesses and asking specialists (like MouchelParkman) to help them by running an extended range of non-core services in partnership. They are also becoming more concerned about how to manage and maintain their considerable physical assets to better effect in increasingly demanding commercial environments. It became increasingly clear to

the company that to continue to grow successfully, it had to become not only more knowledgeable about the changing market conditions facing its clients, but also closer to them in predicting their future changes in service demands.

The solution to this business development issue was to establish a research centre to work collaboratively with these client organisations in developing a joint research agenda on the key business issues, facing clients, and providing a forum for them to debate them. Using the knowledge created, it was anticipated that the Centre could begin to predict the changing products and services required by the industry. The clients would benefit by being able to share experiences and debate business issues in a relaxed (non-competitive) environment, subsequently benefiting from the outcomes of the research. MouchelParkman would benefit by being able to demonstrate 'thought leadership' and could potentially develop leading edge products and services and hence improve its competitiveness.

But MouchelParkman believed that this model would only work if it could establish within the same framework a working partnership with an appropriate academic institution to provide the essential ingredients of intellectual rigour, academic thought and objectivity. The last attribute was essential to be able to demonstrate to the company's clients that the research was genuine, with genuine intent, and based upon a high quality and independently constructed programme. After much research, that included scanning the research interests of many UK business schools, MouchelParkman entered into detailed discussions with the School of Management at Cranfield University. The University itself is a technologically advanced institution, and thus had an appealing and familiar ethos for both the company's technically aware staff and its clients. The Cranfield School of Management has a long and successful history of working in partnership with industry, and its MBA programme has recently achieved the top UK rating. Further, its research interests included a number of 'cross-cutting' themes that coincided with some of MouchelParkman's own concerns. These included supply chain management, innovation management, 'High Reliability' organisational design, and business transformation, all of which are common across most industry sectors.

With this common ground the two institutions quickly gained a common agreement of the possible advantages to a collaborative venture. The MouchelParkman-Cranfield

Centre for Infrastructure Management was established in 1999 under the joint leadership of Professor David Tranfield, the School's Deputy Director, and Jim Harding, the company's Chairman. MouchelParkman's Director of Business Development (Dr Mike Burr), was appointed Visiting Professor, and a Research Fellow (Dr David Denyer) was also appointed.

## 2 DEVELOPING A RESEARCH PROGRAMME

### 2.1 Priming the pump: the SMoLTA (Strategic Management of Long Term Assets) study

Starting from a set of basic ideas, the team (by which we mean staff from both MouchelParkman and Cranfield) recognised that the construction of a valid research programme required early client involvement. Later experiences have unsurprisingly confirmed that the involvement of business clients at the earliest possible stage in any such programme is vital for its credibility: clients appreciate early involvement provided that the rules of external confidentiality and internal openness are maintained. But they also need at least a basic framework of thought, and concrete ideas of relevance to their own industrial circumstances, to allow debate. So early in 2000, the company commissioned the School to manage a study to investigate the emergent issues in infrastructure management amongst key clients of both MouchelParkman and Cranfield.

Unlike the later more innovative style of research (of which more shortly), this first study relied on a conventional approach and consisted of two phases. First, a questionnaire was designed by the company's industry specialists in partnership with Cranfield academics, and was either posted to key clients or was used by MouchelParkman senior staff as a basis for a face-to-face interview. The questionnaire's purpose was to find out what MouchelParkman's key clients viewed saw as being the current and future important issues in managing their physical assets. A number of the questions were qualitative in nature because they were asking clients to speculate on the future changes they could foresee about the management of their infrastructure. Thus the results were analysed and presented as a series of bar charts showing grouped scores for each question. Overall, the results displayed an encouraging consistency indicating a broad consensus of view on many of the topics raised. Secondly four clients whose initial responses showed them to be in the forefront of thinking about change were selected as case studies for more in-depth analysis.

The resulting study (Tranfield and Burr, 2000) was published internally and sent to all of the client organisations that participated. A client workshop was held to present and discuss the findings more generally, including a set of ideas for further research. The research was well received, and the feed back provided a basis for designing the main research programme that was to follow.

In fact, although the SMoLTA study was intended to provide just a preamble to the later more detailed work, its findings

have proved to provide a useful catalyst for further thought on performance management, a topic of interest to the management school. (Tranfield, Denyer and Burr, 2004)

### 2.2 The main research programme

The list of research topics that emerged from the SMoLTA study and presented in the initial findings, was:-

- Exploring new approaches to partnering, alliancing and contract management
- Managing strategic change to produce failure free infrastructure
- E-business, virtuality and new business methods
- Developing financial and functional models to give better understanding of the value of long term assets

After feedback from the client workshop, and further discussion among the team, a number of whom are industry specialists in their own right, this was refined to produce the following research streams for a phase I programme. It is important to note that the topics themselves fall into two groups: the first group is composed of four generic management topics that span all sectors, while the second group's topics are sector-specific:

#### Cross Sector Themes:

High reliability organisations

Asset management

Business transformation

Application of technical innovation in business

#### Sector Specific Themes:

Public-Private Partnerships (PPP)

Private Finance Initiatives (PFI)

Because of their inherently different context and contents, it subsequently transpired that these two types needed a slightly different development process at the next stage of research.

We will not be delving further into the specifics of each of these topics here, since this paper is a presentation of the knowledge management process. But it is interesting to note that the revised topics themselves have subsequently mutated slightly over time, as more insights have been gained into the underlying issues.

A second phase of subjects is already being planned for the second year of the programme.

### 3 KNOWLEDGE CO-PRODUCTION MODEL

#### 3.1 Developing a research programme

By mid 2002 a list of client-validated research topics had been developed and a number of interested clients had been identified who were keen to be involved in the development process. But could anything of value be offered to MouchelParkman's clients at the more detailed level?

The topics that emerged from the SMoLTA study are well known in the infrastructure industry, and some of them have been under scrutiny for a while. The fact that they had been identified by clients as having a continuing importance meant that they were still searching for effective management solutions, but this also meant that identifying the issues had been easier than solving them. Nonetheless detailed research insights had to be presented that would be useful and relevant for the future audience. Moreover, the findings had to be arrived in a way so that the same audience would feel that they had played an integral part in the development process. Further, there had to be as much certainty as possible that, despite the known expertise of the MouchelParkman practitioners, the knowledge base of each research stream was up to date. Finally, the research centre had to be organised and new processes and methodologies developed for each research strand.

It was clear that conventional survey methods would not be adequate to meet these demanding criteria. Guided by the academic staff at the school, an innovatory design process was therefore introduced that was founded on an evidence-based approach using systematic review informed by practitioner knowledge. It was considered that this approach would enable the best research evidence available on a given topic to be combined with the experience and expertise of MouchelParkman's professionals and its clients. This formed the basis of the knowledge co-production model.

#### 3.2 Knowledge creation and transfer

Both MouchelParkman and Cranfield recognised that they acquire and use knowledge in quite different ways, and to different ends. For the commercial company, knowledge is acquired in order to build best practice, and to develop products and services that will ensure the company's survival, often over very short term cycles. For the researcher, building enduring knowledge can be an end in itself and is often seen as part of the academic process of hypothesis testing and theory development.

MouchelParkman has ambitions to be a market leader, and so is always seeking ways to gain competitive advantage by predicting and delivering the next generation of products and services likely to be needed by its clients. This requires knowledge to be fed in from a number of sources. First the company's own consultants usually come from the industrial sector that they now serve as consultants, and this provides a base understanding. But inevitably, once the professionals move away from the industry itself, their knowledge will tend to lose its immediacy. So it is necessary to constantly engage

with senior staff from client organisations to maintain up to date knowledge about their changing business pressures and the new services they may be seeking. Finally, for an international company like MouchelParkman, there is a mass of information available worldwide from studies and papers, documenting the experiences and researches of others. Some of this information eventually flows through the recording and presentation processes of various professional institutions, but much is not captured systematically or with an end study in mind. Thus what was required was a methodology for gathering research-based knowledge from disparate sources and to use it to inform management practice among both the company's consultants and their clients. These sources of research evidence could then be integrated with the expertise of MouchelParkman's professionals to enhance product development.

From Cranfield's perspective it was also important that academics and practitioners should work together to identify problems that are not only pertinent to practice but also have the potential to contribute to knowledge of management and organizations, and hence improve the relevance and utility of management research. The academic partner has key skills in developing generalised models from disparate sources of information, while the MouchelParkman practitioners are able to use their insights to shed new light on the information that clients might need about future products and services. This process of knowledge transfer is aided by an understanding that both parties have something to gain from a collaborative approach to knowledge creation and transfer.

#### 3.3 Evidence based approach and the systematic review

The evidence-based approach is a methodology that is ideally suited to servicing some of these demands. It can now be found in many social science domains such as social care, criminal justice and education. Evidence-based policy and practice is based on the best research evidence of a specific problem gained from a systematic review of research material and its integration with a practitioner's experience and expertise on that subject along with input from the client organisation. Details of the review process can be found elsewhere. (Tranfield Denyer and Smart, 2003).

Knowledge creation and transfer is achieved using a systematic review process to locate, select, appraise and synthesise relevant research evidence as a collaborative endeavour. Thus, the two-way agenda formulation, joint data analysis and synthesis, and shared dissemination of research output provides the framework for the 'knowledge co-production model' (Tranfield Denyer Marcos and Burr, 2004). This is described next.

## 4 THE CO-PRODUCTION MODEL

### 4.1 Review panels

For this programme, the process is initiated by setting up a joint review panel, comprised of two academic researchers, two consultants from an industry sector group (such as highways, water or local government), a MouchelParkman Group Management Board Director, the Visiting Professor and a MouchelParkman programme co-ordinator who with the academic researchers provides continuity across the programme. Where possible, other stakeholders such as clients as end users are also invited to join the team.

The choice of a panel leader is crucial for a successful outcome. Clearly they have to be chosen for their particular insights, and with a sympathetic approach to participative working. Also all team members have to contribute to both the debate, background data evaluation and sometimes interviews with key clients. Hence the team leader must lead by example, and be given enough time away from day to day pressures to do this. But the leader's most important attribute is that is that s/he sees the successful outcome of the work to be central to their own business sector, and hence as essential business development work. A senior MouchelParkman consultant was chosen to fulfil this role for each research stream, chosen for their professional insights and leadership qualities. In the case of the cross sector research themes such as Asset Management, they are senior staff with extensive experience both as management consultants and industry specialist, drawn from MouchelParkman's management consultancy division. In the case of the sector-specific themes, the consultants are drawn from the company divisions that manage the particular industrial sector.

In one research stream (Public Private Partnerships), a senior official of central government agency responsible for monitoring performance of local authorities also accepted an invitation to join the panel, and provided he sees that the findings meet the needs of the public sector, the agency will be cited as co-author on any publications. This is a very useful endorsement of the quality of the work.

Each forum operates as a partnership between researchers and practitioners and it is the development of mutual understanding and trust that enables bridges to be built. Practitioners must develop confidence in their ability to participate in the research and scholars must learn to appreciate that the experience of dealing with significant issues in practice provides managers with a high level of expertise that can be brought to the inquiry.

The first challenge in developing an evidence-base is to identify questions that relate to specific management issues and then turn them into suitable review questions. Through group discussion, the panels are encouraged to share their understanding and experience of the issue. Identifying questions that satisfy both the company's managers and (later) its clients, as well as having the potential to inform theory and contribute to the development of knowledge, has proved a significant challenge that can only be overcome through the partnership approach. Often, new insights have

been quickly gained by the consultants when they are challenged and encouraged through this process to articulate previously tacit understandings and knowledge about their industry sector. The fora also provide a unique chance for managers to get away from day-to-day management pressures and focus on thinking laterally about the future direction of their clients' business (and hence MouchelParkman's). In the case of the Public-Private-Partnership (PPP) research theme, the question that was eventually formulated was '*What makes PPP a good or a bad thing?*'. This seemingly simple question took some while to formulate, but its form triggered the search process and enabled data to be gathered.

### 4.2 Searching for study information

Using the question formulated by the panel, a systematic search is then made for key information and publication sources that may help to answer it. This search is conducted by the Cranfield researchers who are particularly skilled at information search and synthesis, and in using the various search engines that can significantly speed up the scanning and review process which can cover many hundreds of entries in reference data bases. The search includes both academic and practitioner published studies and papers. A first list of potentially relevant studies is generated by the researchers, and practitioner panel members then scan through them all and vote for inclusion or exclusion. While some differences between the views of panel members do show up at this stage, they have been quickly resolved and a core consensus as to what constitutes the most relevant body of material has always been achieved.

### 4.3 Developing a model

Using again their particular skills the researchers then consolidate the outcome. By scanning the key words, phrases and conclusions of the short listed articles, they attempt to present a generic model or process chart in which key elements start to emerge, enabling the question posed at the outset to be answered, clarified or modified. This process again requires the skills of data analysis and presentation possessed by the researchers, although in the spirit of the co-production process, they are usually joined at this stage by one or two of the team's MouchelParkman staff who are also versed in such techniques.

The whole panel then re-assembles for a day-long work shop, at which these initial thoughts are presented and argued over. Often the elements are re-assembled. Sometimes supplementary questions arise and require further study. But as the whole team gains more understanding of the process, there is an increasing certainty of a successful outcome. In MouchelParkman's terms this means that a model will have been created that will have application for a particular set of client issues. In the case of the Public-Private-Partnership research stream, the panel was able to devise a PPP process model that is resilient enough to allow the development of a 'tool-kit' that will guide public agencies through the complexities of initiating a PPP programme.

#### 4.4 Utilising the findings

The company then organises a number of client events to test and refine the outputs, and gain additional feedback. The co-production process continues throughout, with academics of the Cranfield school continuing to act as part of the joint presentation team. This starts with a 'challenge session', where a small panel of clients is assembled to challenge the findings. The individuals asked to join at this stage are chosen because they are already familiar with and friendly towards the company, are known for their ability to think laterally, and relaxed about expressing a strong view. The results of this debate are used to further refine the research findings towards a packaged set of findings.

After this stage is reached, a client dinner is held at which the now relatively sophisticated package of work is presented by the team (MouchelParkman and Cranfield) to a number of senior figures. These figures are drawn from a number of industries if the research stream is a generic management topic, or from a single industry if the research stream is sector-focussed. Clients whose own experiences have been drawn upon in the process of research development are also called upon to give presentations. Open debate is encouraged in small groups. Feedback from this event is used to provide final endorsement of the research findings.

From MouchelParkman's perspective this inter-active design process provides an important contribution to business development activities. Internally, the consultancy managers who have been engaged in the process have gained valuable insights into their own market places and are able to apply this in direct dealings with clients. The results of the work are also widely circulated through the company. The MouchelParkman-Cranfield Centre has its own Intranet site located within MouchelParkman's web system, and this is universally accessible. It is also part of the MouchelParkman team's responsibility to promulgate the work more pro-actively across the company through internal work shops.

Externally, a number of outcomes is envisaged. First, the publication of best practice guidance handbooks for clients is planned in the knowledge that the design process has a well founded information base. In the case of the PPP stream a management hand book is planned, setting out detailed advice about how to implement a set of new management ideas; this will be promulgated across the UK public sector, and perhaps internationally. Second, the research provides valuable material for input to conferences to help stimulate debate among a wider audience. Third, clients can be offered internal workshops to see how the research findings may apply their particular circumstances. And fourth, all these activities lead towards the longer-term possibility of the company being retained across a broader front by more clients as consultants or service providers.

Cranfield also disseminates the research outputs at academic conferences and academic journals. In all cases, (as with this paper) published output is co-authored between academics and practitioners who engaged in the research.

#### 5 CONCLUSIONS

The demands of thriving in an increasingly commercial environment is providing challenges for companies who need to harness all available assets if they are to be successful, and in MouchelParkman's case, aim to be market leaders. Traditional divisions between academic knowledge and practitioner requirements has meant that the science base of management knowledge rarely has been used as a strategic competitive weapon. Consequently, new approaches are required if this potentially vital resource is to be exploited.

Central to the development of the 'co-production' model is the belief that valuable knowledge lies in a synthesis of academic research and practitioner experience. Organising to achieve this provides challenges to both the academic and practitioner communities. MouchelParkman and Cranfield are demonstrating that both organisations are benefiting from this joint approach. They learn from each other, and are able to develop joint agendas, while maintaining commercial acuity and academic excellence.

The final proof of the value of the co-production model is in the quality and relevance of the programme's output when viewed from the perspective of MouchelParkman's clients. After a number of early events, the feedback has been universally positive, and as the team gets more skilled in applying the process, so the company's consultants have become more confident in the power of the approach and its practical application.

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