

Engaging Entrepreneurs in Formulating Research and Innovation Policy at the European Level

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ABSTRACT

Within the framework of EU policy development we address the question of *who* to involve in the establishment of research questions and how. A specific attempt to do this is discussed in the context of a particularly challenging group. The firms involved are those which address – and seek to profit from – engagement with biodiversity in their core business. More than most classes of firm they have to hold that tricky balance between ensuring competitiveness while maintaining tradition. Some are growth oriented to the extent they wish to become the dominant firm in their niche, while to others ‘growth’ in the sense normally used is anathema. Firms from all the major European countries are included. Their scale and scope range from small-scale wild and farmed fisheries to the management of national parks as business incubators. Many are extremely innovative technically, in terms of business processes and in the creation of new markets. For example, one case firm has established itself on the basis of agreeing nitrate capture quotas in an aqueous environment (to prevent marine pollution from agricultural run-off): the analogy is with delivering carbon capture quotas in an atmospheric environment. This is believed to be a world first.

The project discussed was established by the European Commission in order to gain a deeper understanding of how to deliver environmental goals *via* private sector enterprises. A partnership of environmental NGOs and business schools is involved. Examples of emergent research questions are indicated, but the thrust of the paper is towards the process issues involved. Mixed methods are advocated including structured literature search; case writing; and focussed workshops.

The framework for discussion is the ‘Mode 1’ vs. ‘Mode 2’ research distinction posited by Gibbons *et al.* (1994), which emphasises: transdisciplinarity; knowledge production in the context of application; multiple quality controls; diverse teams; reflexivity; and social accountability.

The paper reports on progress with work which was discussed at the 2006 *Rencontres* (Watkins, 2006) when at the planning stage.

INTRODUCTION

*Probioprise*¹ is a project commissioned by the EU Directorate General for Research. Its goal is **to identify a research programme** which will assist entrepreneurs to simultaneously meet two major planks of EU policy: the Lisbon Agenda, which seeks to make Europe globally more competitive by encouraging enterprising behaviour; and the Gothenburg Declaration, which aims to halt and reverse the loss of biodiversity in Europe by 2010. Normally, such objectives would appear to be in potential conflict, since enterprise

¹ ‘*Probioprise*: Creating a European Platform for SMEs and other stakeholders to develop a research programme for pro-biodiversity business’, *Framework 6* Priority 1.1.6.3 Global Change and Ecosystems. SSA #018356.

and environmental concerns are not seen as natural bed-fellows. In a counter-intuitive leap of faith, the focus of the project is to identify and work with smaller enterprises, and potential enterprises, which benefit from the sustainable exploitation of biodiversity as a key resource (Pro-Biodiversity Enterprises, hence *Probioprise*). The focus is on such firms in protected areas (such as National Parks, *Natura2000* locations and *Ramsar* sites). These sites tend to be located in some of the most rural areas of Europe and are often extremely peripheral in economic and social terms, as well as geographically. The research programme proposed will form one input to the development of EU's *Framework 7* and subsequent *Framework* programmes; it is itself supported under *Framework 6* as part of the work programme of EU DG Research. The Commission makes special efforts to involve SMEs in *Framework*.

Probioprise is being undertaken by a consortium of European NGOs. Both *Fauna and Flora International (FFI)* and the *European Bureau for Conservation and Development (EBCD)* are environmental groups. The third partner is *EFMD*, formerly known as the *European Foundation for Management Development*. This evolved as an association of Europe's leading business schools and management development specialists from major international corporations, but has increasingly global reach. *EFMD* has a number of initiatives in place to stimulate entrepreneurship research and education in Europe. The author became involved in the project described as a representative of the *EFMD*'s '*Entrepreneurship, Innovation and Small Business Network*', and has been particularly involved in writing case studies of SMEs to inform the project's conclusions. The paper is therefore written from the perspective of a participant-observer; the contribution reports and reflects upon work done by a large international team engaged in organising and delivering a variety of related outputs, but the opinions expressed are those of the author alone.

The mode of operation of the project is to undertake literature research, hold workshops of entrepreneurs operating in four different ecologically sensitive zones (forests, wetlands, grasslands and maritime / coastal zones), and to follow up the experiences of several of the participants through writing detailed case histories. The focus of this project is to identify management and other socio-economic research that could potentially make entrepreneurs more effective agents for delivering the dual policy aims - while themselves running economically effective businesses.

At the time of writing, the four planned workshops have been held, and more than 100 individual enterprises have been involved in the data collection, with 15 organisations being the subject of detailed case histories. Cases have been written jointly by business experts nominated by *EFMD* and biodiversity experts nominated by *FFI*.

ENTERPRISE AND THE ENVIRONMENTAL AGENDA

A literature review of the intersection of scholarship regarding the smaller enterprise with that on environmental issues identified two major strands, broadly characterisable as the constraints perspective and the opportunities perspective, although the further one investigates the less clear this distinction seems to become.

Constraints Perspective

The first strand essentially concerns legislation as a constraint on environmentally insensitive behaviour or, in its more sophisticated form, as an incentive to environmental sensitivity. At its simplest, 'envi-

ronmentalism' is seen as having the same effects as regulation in general; as such it may also lead to innovation as firms try to adapt or circumvent legislation (*Cf.* Clark 1987). However, it is clear that the responses of firms to environmental regulation – as with regulation and 'red tape' generally – are revealed to be more complex the further one investigates.

Sharfman, Meo *et al.* (2000) observed that a growing number of firms have begun working towards the development of innovative systems that consume fewer resources, reduce waste and enhance productivity, while creating new market opportunities, but argue that since this environmentally friendly innovation occurs under varying types / levels of regulation, the role of such laws is still debatable. On the basis of four case studies undertaken for a *U.S. Environmental Protection Agency (EPA)*-funded study that describes environmentally conscious product and process innovations in high and low regulation environments, they modelled the antecedents of environmentally conscious technological innovation under high and low amounts of regulation. More quantitative work was conducted by Hitchens, Clausen *et al.* (2003) who sought to measure the relationship between firm competitiveness, management environmental culture, the importance of external advice on the use of cleaner production, and the firm's environmental performance among European manufacturing SMEs in the United Kingdom, Republic of Ireland, Germany and Italy in furniture and two other sectors. Cost and market drivers appeared to be almost as important as regulation, and the environmental initiatives adopted by firms did have an impact on both cost and market performance. Nevertheless, a statistically significant relationship between overall environmental and economic performance could not be shown. There was no evidence of a relationship between environmental performance and management's environmental attitudes. Moreover, SMEs failed to take up available advice, which often appeared to be of good quality. Further work by the same research group (Hitchens, Thankappan *et al.* 2005) concluded that more competitive SMEs do not necessarily have any greater capacity to adopt environmental initiatives. In a study which tried to link small firm environmental performance to factors such as profitability, growth, skills and R&D, they examined three interrelated propositions concerned with the impact of environmental initiatives on firm competitiveness: the relevance of management's awareness to environmental issues; the availability of external information and expertise to aid management; and the competitiveness of the firm. There was only scattered evidence to suggest any of these was importantly associated with the firm's environmental performance. The study showed that firms with an average economic performance were just as likely to adopt environmental initiatives as their high-performing competitors. Moreover, regardless of managers voicing personal concerns about the environment, most small firms do relatively little about the environment in practice and are reluctant to seek advice about it.

Blackburn, Hart *et al.* (2005) investigated the effects of state regulation on small firms in three situations, including the response of business owner-managers to increased environmental regulation, in order to provide a holistic analysis of the effects of regulation on business strategy, the behaviour of owner-managers and business performance. They argued for taking into account the 'world views' and experiences of business owners to understand their responses to interventions designed to meet wider government objectives, as well as structural factors, including labour force characteristics, supply chain influences and the nature and extent of competition. They conclude that the effects of regulation on smaller enterprises are always potentially more complex than they might appear at first sight and that what is re-

quired are sociological analyses, seeking to understand the motivations and meanings of small business owners, as well as economic perspectives. They argue that although business owners operate within certain structural constraints – including their business sector and resource and information limitations – within these parameters they respond according to a set of motivations and world meanings where the logics of intervention and the responses of business owners may not coincide.

Opportunities Perspective

In the second strand, environmental consciousness and concerns are the specific focus of business opportunities. This strand is somewhat piecemeal and at present lacks even a common vocabulary, but is evolving rapidly and may have much promise. Thus studies here may describe the ‘green entrepreneur’ (Berle 1991; Fischetti 1992), ‘ecopreneurship’ (Bennett 1991; Isaak 1998; Pastakia 1998; Isaak 2002; Schaper 2002), ‘bioneers’ (Schaltegger 2002), ‘environmental entrepreneurship’ (Keogh and Polonsky 1998; Linnanen 2002) or ‘sustainable entrepreneurship’ (Anderson 1998; Cohen and Winn 2007). Despite this, the focus of the studies is very similar. There is even a small literature focussing on the support networks available to such firms, such as specialist sources of risk capital (Randjelovic, O’Rourke *et al.* 2003) and a growing case literature (e.g. Volery 2002; Seidl, Schelske *et al.* 2003) which might be adapted for pedagogical use.

Recently, attempts to systematise and theorise the situation have been attempted. These usually start from economic perspectives such as discussion of market failure (e.g. Pastakia 2002). Cohen and Winn (2006) suggest that four types of market imperfection (inefficient firms, externalities, flawed pricing mechanisms and information asymmetries) both contribute to environmental degradation but may also provide significant opportunities for the creation of radical technologies and innovative business models. Thus it is possible for “...founders to obtain entrepreneurial rents while simultaneously improving local and global social and environmental conditions”. Similarly, Dean and McMullen (2007) argue that since “...environmental degradation results from the failure of markets...environmentally relevant market failures represent opportunities for achieving profitability while simultaneously reducing environmentally degrading economic behaviours”. The key task therefore is to determine how entrepreneurs identify and seize the opportunities that are inherent in environmentally-related market failures.

Market failure is one of the few widely accepted reasons for providing assistance to SMEs generally, be it in the form of finance, information services, training or consultancy (*Cf.* Storey 1994; Bovaird, Hems *et al.* 1995; Bergstrom 2000; Hinloopen 2004, among many others. Thus it is unsurprising that there have already been calls to establish ‘business biodiversity facilities’ to mitigate market failure where the market currently underprices valuable biodiversity goods and services (Bishop, Kapila *et al.* 2006)

INVOLVING ENTREPRENEURS IN FRAMING POLICY

It is something of a paradox that as the entrepreneurship / small business field has become an acceptable academic endeavour, it has become more and more detached from the stated interests of the subjects of its research. It is easy to see why this should be so. Verstraete (2002 and 2003) has explained the process of academic institutionalisation in France, which has a particularly rigid and statist academic system, al-

though Aldrich (2000) has argued that in Europe more generally² entrepreneurship / small business academics are more practically and policy oriented than their colleagues in the USA. Evidence is scant, but Brockhaus (1988) specifically compared the concerns expressed by entrepreneurs to the US President in the 1986 *White House Conference on Small Business* to research undertaken in the key entrepreneurship niche journals and key conferences (Cf. Watkins and Reader 2003). He found little overlap. Banks and Taylor (1991) and Aldrich and Baker (1997) later reached similar conclusions. Indeed, since that time the situation has probably worsened as attempts to evaluate academic research around the world have increasingly focused on peer review and bibliometric measures rather than applicability in the outside world. Busenitz, Page West *et al.* (2003) exemplify those who seem to welcome this trend, seeking to locate and confine entrepreneurship research to just one narrow academic subfield, sacrificing all to academic respectability and career progression. This has happened to such an extent that even academics are beginning to worry, but it will be instructive to observe whether the response to the general Academy of Management Conference call for 2008 by Walsh (2007/8), seeking the development of *phronesis*, is higher or lower in ‘emergent’ domains such as entrepreneurship.

MODE 2 RESEARCH IN THEORY

Be that as it may, in the respect described above, entrepreneurship research is just following in the footsteps of much of previous social science, and before that, natural science. In a book which has much influenced policy makers, Gibbons, Limoges *et al.* (1994) characterise the process by which academics set their own research agenda through peer review and discount the interests and needs of the wider community as ‘Mode One’. They contrast this with a form of research that was evolving at the time they were writing and which they characterise as ‘Mode Two’. Mode Two research takes into account the interests of other societal stakeholders from the outset and goes beyond traditional disciplines. Specifically, it is construed as research which is undertaken as: part of a socially accountable, reflexive process; is subject to a wider range of quality processes than simple peer review; is transdisciplinary; is performed by heterogeneous research teams; and perhaps crucially, is performed in the context of application. (See **Figure One** for a schematic of this.) Although these characterisations are ideal types, there is no question that the concept of Mode Two research has been extremely and increasingly influential (Nowotny, Scott *et al.* 2001). In particular, it is possible to see elements of all five Mode Two characteristics in the design of the EU *Framework* programmes. However, even when an effort is made to embrace potential users in the formulation of research policies and projects in order to meet the criterion ‘not only of research performed in the context of application’, but also those of ‘social accountability’ and a broader construct of ‘quality’ (in terms of fitness for *their* purposes), it is much easier to find representatives of large firm interests than of small ones.

MODE 2 RESEARCH IN PRACTICE: PROBIOPRISE PROJECT

As noted earlier, the focus of *Probioprise* is to identify and work with smaller enterprises, and potential enterprises, which benefit from the sustainable exploitation of biodiversity as a key resource in order to

² Probably most true of the UK and Nordic countries.

take note of their concerns and interests in the formulation of future *Framework* initiatives. We can now examine the extent to which this projects falls within the parameters of Mode Two research.

Probioprise is itself a *Framework Programme* under the EU's 6th *Framework*; however, it is a special project by virtue of the fact that its aim is to inform the research agenda for *Framework 7* and subsequently: in EU parlance, it is what is known as a Specific Support Action or SSA.

So it is doubly important, given that the set of *Framework Programmes* is intended to support research that is near to application, that *Probioprise* meets the conditions of Mode Two research. These conditions therefore perfuse the design of the *Probioprise* project, as can be seen when we address each of the Mode Two characteristics individually.

Heterogeneous, Dynamic Research Teams

We have noted above that *Probioprise* is being undertaken by a consortium of European NGOs, bringing together expertise in environmental issues, business development and the management and influencing of core European institutions. *Fauna and Flora International (FFI)* is a long-established environmental NGO which focuses on the preservation and re-establishment of biodiversity on a worldwide scale. *European Bureau for Conservation and Development (EBCD)* is an organisation which was established to undertake environmentally-related tasks for European institutions such as the European Parliament. The third partner is the *EFMD*, the association of Europe's leading business schools and the management development specialists of major international corporations, which has a number of initiatives in place to stimulate entrepreneurship research and education in Europe. All of these organisations can be described as network organisations since they can quickly access and animate a wide range of contacts and expertise through their members and sponsors. They therefore pass the tests of heterogeneity and dynamism.

Transdisciplinarity

The core expertise set which *FFI* brings to the project is in ecological and biological sciences, together with experience of a political nature which comes from dealing with local and national administrations, together with other NGOs, on a worldwide basis. The expertise set which *EFMD* brings to the project comprises the disciplines which are traditionally taught in European business schools, which range from business history through organisational design and strategy to economics and applied mathematics. A subgroup of its members also has particular expertise in the emerging discipline of entrepreneurship and small business management. *EBCD* brings expertise in environmental management and law, together with political skills including lobbying. The criterion of transdisciplinarity thus seems well met.

Socially Accountable Reflexive Process

A core element of a socially accountable reflexive process is to involve the key stakeholders in a meaningful way, while not neglecting the legitimate interests of wider civic society. The design of the *Probioprise* project has addressed this issue in the following way. Following a literature search for publications of all kinds which address issues of SMEs engaging with biodiversity, each of the organisations activated its own networks to establish levels of knowledge and interest in the topic. On the basis of this, academics, consultants, and – above all – SME owner-managers were identified who had both an interest and expertise to share. These groups were divided into four on the basis of the kind of ecological setting in which they mainly operate: forestry, grasslands, wetlands, or the marine and coastal environment. A workshop

was then held for each of these groups. Representative SMEs which had *a priori* interesting experiences to share were invited to discuss their experiences of creating and developing their businesses, and to indicate the kinds of problems, issues and opportunities they expected to face in future. Discussions were wide-ranging, with both other entrepreneurs and the invited experts commenting on each presentation. Following each workshop, a report was circulated to all participants to invite their comments. In addition, a small number of SMEs from each workshop was chosen to be the basis of an extended case study which documented in more detail the firms' experiences and issues faced. Each case study has been written jointly by authors having respectively business expertise and expertise related to the nature of the biodiversity which was the basis of the business opportunity. Each case study is next sent to the SME for comment and as each becomes finalised it is placed on the project website. All participants in every workshop are encouraged to use the website to check on and contribute to progress and as the basis for contacting firms with which they may wish to do business. The site is also being opened up to other relevant parties. The project has thus established a platform to enable the interaction of firms working with biodiversity which may continue beyond the life of the project itself. The penultimate stage will be to write two documents based on the information collected from the workshops, case histories and literature review. The first of these comprises an analysis of the experiences of SMEs seeking to engage in a positive manner with biodiversity, including the issues faced and still to be overcome. The second output is a proposed Research Agenda to determine how SMEs may more effectively work with biodiversity to meet the joint aspirations of the Lisbon Agenda and the Gothenburg Declaration, and to assist them to do so. These papers will then again be circulated to all participants in the project, as well as being placed on an open website, for wide consultation before being presented to the European Commission and the European Parliament. In this way the criterion of the research being a socially accountable, reflexive process is being met.

Knowledge Produced in the Context of Application

From the discussion above it should be clear that the relevant actors – the entrepreneurs – are being involved throughout the process of determining the kind of research which they believe to be most relevant in assisting them to meet their business objectives while maintaining or enhancing the biodiversity on which their continued business success depends. In particular, by beginning the process with a wide-ranging and relatively unstructured set of workshops rather than with a fully developed, researcher-determined set of topics or formal questionnaire, it is the entrepreneurs who are throughout being encouraged to take the lead in the design of the ultimate research agenda. For the first Workshop the organisers / *animateurs* deliberately did not do more than set out a list of likely 'Issue Areas', which might for the most part be of the sort faced by any SME (see below), as a framework within which to capture these. This rather inductive approach is a rarity in the establishment of policy towards SMEs in any field: the aim was to ensure that the research which is ultimately undertaken within the *Framework* programmes, and which seeks to assist these SMEs by working on issues which they face (or believe they face), are those which the entrepreneurs themselves genuinely feel to be the most salient. As an example of the detailed way in which the project is being implemented, note that the workshops are being held in locations specific to the ecosystem with which the relevant entrepreneurs engage, and – wherever possible – that this is within a protected area and / or co-hosted by a scientific research institute prominent in research on

that ecosystem.³ In this way the team is seeking to ensure both that the research agenda itself is produced in the context of application, and more importantly that the research conducted in future on the basis of the research agenda is itself highly contextualised to the needs of the SMEs.

Broad Range of Quality Controls

Without wishing to labour the point, it should be clear that by feeding the results of the research back to a variety of interested parties in ‘real time’ throughout the project – including the sponsoring group within the European commission, and not least the entrepreneurs themselves – the generalised quality criterion of ‘fitness for purpose’ is taking priority over the narrowly constructed quality criteria of academic peer review.

PROGRESS TO DATE

Engagement

To date the project has managed to engage with owner-managers and business experts from nearly all the 27 Member States and some other countries in the EEA⁴ and beyond. This has been difficult, and it is a tribute to the power of the networks which the project partners have been able to animate.

Criteria for inclusion in the project have actually been the subject of considerable debate within the team throughout. With a limit of 15 case studies and around 100 workshop participants it is difficult simultaneously to ensure good coverage of different firm sizes (EU itself recognises three within the general rubric of ‘SME’⁵), types of enterprise (since the EU rubric again does not insist on the common characterisation of the profit-seeking independent enterprise which the term ‘SME’ immediately suggests to Anglo-Saxon ears) and four (as a minimum) kinds of ecosystem. This is before one even examines the kinds of goods and services offered by the firm, or its position in the supply chain. The team has, however, as discussed below, tried to use such constraints as a springboard to generating aspects of the research agenda.

The Emerging Research Agenda: Stimulated by Issues in the Case Studies

Table One mainly sets out the characteristics of the case firms from the first round of case writing, comprising 8 organisations. The final row of **Table One** lists for each organisation two important issues arising as a result of the case analysis. Some of these relate to general business issues as faced by any SME (*e.g.* seasonality; managing growth), whereas others relate to issues specific to those firms located in or near protected areas and / or otherwise sustainably engaging with biodiversity for profit (boundary effect issues; lack of specialist services (including finance), ‘unfair’ competition from less ecologically sensitive firms). There are – although not apparent from this table directly – some issues which although common to all SMEs – are severely compounded by these firms engaging with biodiversity. For example, lack of continuity in EU policies as experienced by the Portuguese firm *Imobiente* is compounded by the

³ For example, the forestry workshop was co-hosted by *METLA*, the Finnish Forest Research Institute; the grasslands workshop was held in Croatia in association with *Žumberak-Samborsko Gorje Nature Park*.

⁴ European Economic Area. Broadly, these countries are economically integrated with the EU without subscribing to the aspect of political integration that membership would entail. Switzerland and Norway are important members of this group.

⁵ This is based on numbers employed. Less than 10 are called *micro-firms*; up to 50 are *small firms*, and above that are *medium-sized firms*. The main rationale for this is that the different sizes will have different organisational characteristics.

industry in which it works – forestry – which has one of the longest product cycles found in *any* industry (Watkins 2006).

However, although the case studies constitute the most intensive interaction between those on the project team and the SMEs – and are therefore likely to be the source of the deepest and most complex insights into the potential Research Agenda – they are by no means the only source. Team members have been compiling potential items from a variety of sources since the project began.

Emerging Research Agenda: Stimulated by Literature Review and Follow Through

Given that the ultimate objective of the *Probioprise* project is the establishment of a Research Agenda appropriate to the needs of the firms characterised in this paper, it has been vital to record contributions towards this agenda as and when they are signalled at each stage of the project; they are then followed through to other phases. Thus the ongoing literature review (of which some of the introductory material in this paper forms a part) suggests some areas where new knowledge is likely to be both appropriately generated through academic research and of value to the target firms. One example suggested in part by works cited above such as Pastakia (2002), Cohen and Winn (2007) and Dean and McMullen (2006) is the issue of the extent to which there is market failure in respect of the biodiversity services provided by SMEs. This is something which is being inducted through into the case studies: thus the firm *Imobiente* has customers who provide positive externalities in the form of water management where they are nevertheless unable to capture (or completely capture) the economic benefits. However, another firm (which is the subject of a case not otherwise reported here: *Nordic Shell*, a seafood producer) has been able to construct and implement a business model where the improvement of water quality for its community also generates real economic value for the firm.⁶ It is in this way that parts of the Research Agenda have been identified and developed.

Emerging Research Agenda: Stimulated by Definitions and Methodological Issues

Internal discussions relating to definitions, categorisations of firms and methodological issues have also directly generated useful research questions. Thus the issue of what constitutes an ‘SME’ in EU parlance – as noted above – leads directly to important questions regarding the extent to which business and ecological motivations can be co-resolved, and what constitutes an appropriate context for doing this (*Cf.* Watkins 2007)). Consideration of these issues has led the team to engage more strongly with the social / community enterprise literatures, which in turn has generated further appropriate research questions regarding the applicability and development of these strands of management research.

Emerging Research Agenda: Stimulated by Issues from the Workshops

The other main input into the Research Agenda has been to capture and analyse the issues emerging from discussion in the workshops. Although it was noted earlier that the approach to the whole study has been largely inductive, it would have been inappropriate for the team to have organised workshops which were totally unstructured. Thus *inter alia* a short check-list of headings within which more specific issues might be identified was developed (mainly on the basis of the business research expertise within the

⁶ In essence there is an ‘off-set’ for the fixation of nitrogen run-off analogous in some ways to a carbon sequestration off-set.

group, deriving from the business school participants), as a means of helping to capture research issues manifesting themselves in the first workshop. This list was as follows:

- Typological / Definitional (Including Eligibility Criteria for EU and Other Support)
- Motivational Issues among Environmental Entrepreneurs specifically
- Organisational Issues
- Customer / Market Threats / Opportunities
- Supplier and Logistical Issues
- Position in Supply Chain
- Staffing beyond the Entrepreneurial Core
- Financial Strength and Sourcing Finance
- Knowledge Management (including Absorptive Capacity for New Business Expertise)
- Scalability (and Awareness of this)
- Existence of Networks / Clusters of Similar or Interacting Firms
- Use / Need for Common Services (Marketing, KM, etc)
- Role of Public Sector (at Local, Member State and EU Level)
- Economic Factors

A brief scrutiny of **Table Two**, which displays the outcomes from the first (and typical) Workshop shows that many of the issues which concern BD-based businesses are similar or identical to SMEs in general. However, some of these are complicated by the multidimensional objectives which many of these firms seek to achieve. Consider just two of these.

It is not uncommon for an entrepreneur to establish a BD-based business with environmental considerations predominating and the business being seen as a simple tool.⁷ If the environmental objectives could be met more simply through other means (establishing an NGO, working in the public sector, *etc.*) then the business-as-tool might well be sacrificed. Even if it continues indefinitely, a motivation based on extreme satisficing behaviour may have implications for the extent to which public programmes should support such firms, whatever the apparent benefits. However, if others depend on the continued existence of the firm *qua* business entity this could cause a range of problems in future with which public agencies might have to engage. Clearly the *milieu* in which some of these BD-based businesses exist could create difficult problems for public support.

However, it would be very wrong to leave an impression that all proprietors of BD-based firms lack the motivation and expertise to be successful in business; many of the firms whose experiences informed **Table Two** are innovative, profit-oriented businesses such as those which might be found in any sector. Their profitability may be constrained at present by a failure to capture the full benefits of the ecological services they provide, but they are keenly aware of this and often surprisingly anxious seek out market mechanisms to do this rather than rely on soft loans or other state support. There are clearly emerging opportunities, for example in co-operative action for direct marketing, sustainability certification and elsewhere, that could be business rather than public sector led, at least in the medium term.

For the *Probioprise* team at present the most important thing is that the emerging Research Agenda can be speedily completed and made available to BD-based businesses for comment. Hopefully, in the light of

⁷ It has long been recognised that entrepreneurship may be an instrumental strategy for the continued pursuit of non-economic motivations or specific technical activities rather than a rational economic choice. (e.g. Watkins 1973).

their feedback, there will exist a Research Agenda that a large number of BD-based businesses feel they can 'own'. If so, this will have been a relatively rare example of successfully engaging SMEs in Mode Two research...but could well become a useful model for the future both in environmental entrepreneurship and elsewhere in the *Framework Programme*.

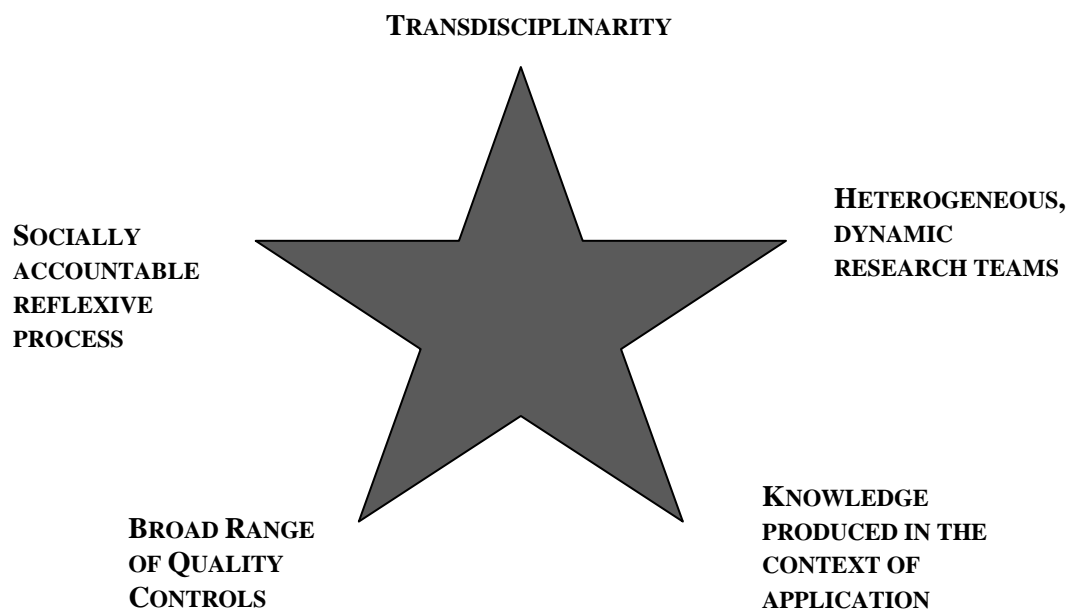
Or, to use Walsh's distinction (2007/8), following Aristotle, can we combine *phronesis* and *episteme* to good effect in developing the *techne* which will enable us to continue to improve mankind's material position while not destroying the planet.

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Figure 1: Schema of Mode 2 Research



Source: Adapted from Summary Materials, *British Academy of Management Special Research Forum on Mode 2 Knowledge Production: 'Exploring Practice-Oriented Research Approaches'*, Glasgow, March 2002

Table One: Sample Cases and Issues Identified

<i>Firm</i>	Heylen bvba	Koli National Park	Aranypony Rt. Rétimajor Fish Farm & Eco-tourism	Field Fair	De Boerinn Farm	Taxus and Kolbon Saw mills	Imobiente
Location	Herentals, Belgium	Koli, North Karelia, Finland ⁸	Sáregres-Rétimajor, Hungary ⁹	Lower Danube Basin – Ukraine, Bulgaria, etc	Kamerik , The Netherlands	Malopolska , Poland	Albufeira, Portugal
Principal ecosystem	Forest + Wetlands	Forest	Wetlands	Wetlands	Wetlands	Forest	Forest
Nature of Business	Eco-sensitive contracting	National Park + Economic Development	Freshwater fish-farming, processing + angling and eco-tourism including accommodation, restaurant, health spa	Diversified, including investment funds + technical assistance to firms, NGOs etc.	Traditional wetlands farm + associated eco-tourism including farm sports	Timber processing + some downstream activities	Forest consultancy / management, including land reclamation and water management
Status / Ownership	Private company set up for purpose.	Infrastructure owned by Finnish State. Partners licensed to operate facilities. Spins off independent SMEs as policy.	Private family business. Post communist era successor to collective farm.	Private firm with overtly stated ecological role Registered in UK but activities are in Eastern Europe	Family farm (held as two separate limited (b.v) companies	Private firms with unlimited liability (spółka jawna - sp.j)	Private micro-firm
Size and scope	9 employees. Right at micro-firm / small firm transition point	Small core staff. Hotel staff + about 25 people in SMEs within Park, plus many more in area surrounding	30 on main site; 70-80 FTE overall. Beginning to structure by activity.	Micro-firm. Creates employment in other firms	7 FT plus around 50 PT staff. Management structures in place	Taxus ~6 Kolbon ~ 40	2.5 FTE employees including owner. Many PT operatives on project basis, often in disadvantaged rural areas
Typical Issues of Concern	Managing growth. Cheap competition from less eco-aware firms.	Institutionally anomalous Boundary effects on periphery of protected areas	Extra costs of operating in Protected Area. Low market premium for quality products	Credibility issues outside home country Lack of finance aimed at biodiversity firms	Over-regulation. Seasonality	Access to finance for SMEs problematic. Quality advisory services lacking	Continuity of EU policies. HRM issues

⁸ For an extended discussion of this case see Watkins (2007)

⁹ For an extended discussion of this case see Watkins and Jones (2008)

Table Two: Research Issues Emerging Directly from a Typical Workshop (Forestry)

A. Typology etc	<ol style="list-style-type: none"> 1. What is best level of aggregation in considering BD-based business since some firms work across ecologies? 2. Are issues of ecological restitution different in kind at a business level from those of maintenance? 3. BD-based business is a confusing concept for consumers? (BD-based business both cut trees / plant trees, etc). What are implications of this for mobilising public opinion?
B. Motivation	<ol style="list-style-type: none"> 4. How do we balance eco motivation against business motivation? 5. How big a problem is growth (since it <i>can</i> create greater role strain here than when eco motivation is absent)?
C. Organisation	<ol style="list-style-type: none"> 6. Given that most – if not all – investment in maintenance of BD and all in the recreation of BD is derived from public funding in some way, what is the appropriate organisational form of ‘SMEs’? 7. Given that BD-based businesses exist in quasi-markets, what are implications for legal status and how do these vary across EU? 8. How does this vary with historical background of Member States? What are opportunities for inter-State learning on bi-lateral or EU basis? 9. Given that most BD issues are long-term, is the SME, with known short-term time horizons, an appropriate policy instrument? If it is, how can issues of long <i>versus</i> short-termism be identified and resolved?
D. Customers / Markets	<ol style="list-style-type: none"> 10. To what extent are opportunities for sustainable exploitation of BD compromised by <i>non</i>-sustainable exploitation by others? 11. Certification / labelling seems important, but <i>how</i> do customers value labelling? <i>E.g.</i> Is mental map to pay premium for ecologically sound products or to pay less for products that are not? (Needs detailed level consumer behaviour research) 12. What would be the technical and legal bases of any BD labelling scheme?
E. Suppliers	<ol style="list-style-type: none"> 13. ???
F. Staffing	<ol style="list-style-type: none"> 14. What are specific training needs/ how should these be delivered? How can they be best financed? Do we need to pay people to train if time is away from firm? 15. Is there evidence that the capital / labour trade off is different in BD friendly firms, intrinsically and / or by choice? What are implications for this? Does this vary between Member States?
G. Financial strength and sourcing	<ol style="list-style-type: none"> 16. If loans are at a commercial rate, <i>why</i> is a special fund required? 17. Is the timing of investment / cash flow affected in a BD-based business compared with a ‘normal’ one? If so, how? How can this be managed? 18. What are implications of having to use much more specialised equipment (<i>e.g.</i> low impact machinery) in terms of amount and term of finance? 19. In general, not just regarding SMEs and / or BD, should there be greater consideration of EU forestry policy since the time frames are so long? (Importance <i>re</i> carbon fixing; future energy resources, etc)
H. Knowledge management including absorptive capacity of new business expertise	<ol style="list-style-type: none"> 20. How do we communicate necessary information / impart knowledge to BD active / potentially active SMEs (who are severely time / resource constrained)?
I. Scalability and awareness of this	<ol style="list-style-type: none"> 21. Are typical BD-based businesses scalable or, by their very nature, apparently constrained to remain small? 22. Do existing business models and processes exist to overcome this?
J. Position in supply chain	<ol style="list-style-type: none"> 23. Is certification system common throughout chain? Should it be? 24. Does this vary by ecosystem?
K. Existence of networks / clusters	<ol style="list-style-type: none"> 25. In forestry long time scales and geographical isolation may contribute to weak networking. If true, how can this be redressed?
L. Use / need for common services Marketing; KM, etc)	<ol style="list-style-type: none"> 26. To what extent are SMEs aware of <i>general</i> issues facing them? (not just <i>re</i> BD-based business issues, but SME problems generally) 27. How can common services best be developed and marketed to SMEs? (BD a lower priority than directly profit related issues, so these need to be fixed first).
M. Role of Public sector in Member States and EU	<ol style="list-style-type: none"> 28. What should role(s) of public sector be? 29. How should this be split between different levels of government (subsidiarity issue)? 30. Levers include taxation, subsidy, regulation and certification. What else is possible? What should the balance be?
N. Economic Factors	<ol style="list-style-type: none"> 31. Can a market in BD be established (<i>cf.</i> carbon emission trading)? 32. What are the circumstances under which BD may be ‘marketised’? 33. How big is the ‘market’ for BD likely to be? Can we extrapolate from existing local pilot studies?