

# Beyond fragmentation and disconnect: networks for knowledge sharing in the English land management advisory system<sup>1</sup>

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## Abstract:

*The growing multifunctionality in agriculture, combined with privatisation of previously state-funded agricultural extension services, has resulted in a pluralistic land management advisory system. Despite benefits in terms of increased client orientation and greater advisor diversity, it is argued that these changes have resulted in the fragmentation of the land management advisory system and a reduction of interaction within the advisory system and between the advisory system and science. In this paper we explore how advisors (land agents, applied ecologists and veterinarians) develop their knowledge and skills by engaging in different kinds of networks. Key findings suggest that advisors draw upon informal 'communities of practice' within their own advisory profession, but also draw upon broader 'networks of practice' involving multiple advisors from different advisory professions, resulting in knowledge sharing, brokered around the complex queries of clients. Whereas fragmentation and disconnect due to competition and epistemological differences do play a role; they do not appear to prevent overall knowledge sharing among advisors within and across different professions. Assumptions of a collapse of interaction within the land management advisory system are not supported by the evidence. However, to optimize interactions between professions, and between advisors and the science systems, informal or formal brokers could play a bigger role.*

## 1. Introduction

Given its multifaceted character, sustainable and multi-functional land management (comprising farming and food production, landscape management and rural tourism) is a knowledge intensive affair. Hence, an adequate supply of advisory services that can support land managers in making well informed decisions is essential (Laurent et al., 2006). Reform measures such as privatisation have caused the disappearance in many countries of monopolistic state-led extension services, and have contributed to the emergence of pluralistic advisory systems with a great diversity of advisors, which operate as 'knowledge markets', for example in the UK (after privatization of ADAS) and The Netherlands (after privatization of DLV) (Garforth et al., 2003; Laurent et al., 2006). An important argument for privatisation was that client orientation and

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service quality would improve in a pluralistic system of advisors who are competing with each other. Though higher diversity in services offered is evident and increased client orientation and improved service quality have been observed (Rivera and Sulaiman, 2009), it has been argued that the transition to a pluralistic advisory system and the commoditisation of knowledge has induced fragmentation of the system in which actors are not well-connected and there is information asymmetry. (Leeuwis, 2000; Garforth et al., 2003).

While some have researched how privatization has impacted on clients (e.g. Klerkx and Leeuwis, 2008; Labarthe, 2009), as regards the challenge for the advisory system to obtain the knowledge to offer adequate advisory services, there has been far less attention to how the different advisory professions within the land management advisory system might do this themselves (notable exceptions include Albaladejo et al., 2007; Cerf et al., 2011, who studied identity development, learning and collaboration of advisors). The aim of this paper then is to study how advisors obtain knowledge, focusing on interactions within their professions and with other actors in the advisory and science system, i.e. their 'know-who', and we analyse how this relates to concerns over apparent fragmentation and disconnect of current land management advisory systems. The paper continues with a conceptual framework, drawing from literatures on knowledge management in so-called knowledge intensive business service firms (KIBS), distilling some key focus points for analysis. It then presents an analysis of the process of obtaining the knowledge necessary for offering adequate advisory services to their clients in three advisory service professions related to land management (land surveyors, veterinarians, and ecologists) in England.

## **2. Conceptual framework: knowledge exchange networks and social capital**

The know-who of advisors can be seen as the 'social capital' which enables optimization of the quality of service in terms of expertise and advisory skills (Smedlund, 2008): knowledge exchange thus also is about new knowledge creation through recombination. Social capital refers to features of social organisation such as networks, high levels of interpersonal trust and norms of mutual aid and reciprocity which act as resources for individuals and facilitate collective action (Putnam, 2000; Njuki et al., 2008). Three types of social capital have been distinguished in the literature: bonding, bridging and linking social capital (Putnam, 2000; Njuki et al., 2008). Bonding social capital refers to the trusting and cooperative relationships between members of a network who are similar in a socio-demographic sense, with thick trust, dense multiple networks with 'strong ties', generally informal collaboration, and long-term reciprocity. Bridging social capital refers to the links between separated dense networks for collaboration and coordination, characterised by larger and looser networks with weaker ties, more formalised collaboration and thinner trust. Linking social capital refers to 'norms of respect and networks of trusting relationships between people who are interacting across explicit, formal, or institutionalised power or authority gradients in society' i.e. the ability to interact with groups with whom one does not have great similarities in the socio-demographic sense (Szreter and Woolcock, 2004).

The different types of social capital link to a typology developed by Smedlund (2008), who argues that different purposes of knowledge exchange for the development of both expertise and advisory skills call for different types of networks: centralised, distributed and decentralised networks. According to Smedlund's typology, a centralised network has been found adequate for maintaining adequate knowledge in order to achieve operational effectiveness for what he calls 'routine problem solving' aimed at solving common problems which have a well-known solution space (Smedlund, 2008). Here, a central node in a network channels the information exchange, such as a central ICT based database. In centralised networks, social capital is generally absent.

Such a database consists of explicit knowledge (know-what and know-why) for routine advice, quickly finding a standardised solution to a client's query (e.g. advice on certain regulatory issues that are similar for a great group of land managers). Databases also serve as a means to keep abreast of developments in a certain subject area, i.e. keeping up-to-date. Some large KIBS firms build specific 'expertise centres' or 'centres of excellence' for this purpose (Werr and Stjernberg, 2003), or employ referral mechanisms who help to connect the right advisors to the client (Criscuolo et al., 2007). In the land management literature in particular, attention has been paid to the role of ICT instruments for this purpose (Ballantyne, 2009) such as portals which act as one-stop-shops, as well as the existence of 'front-office' advisors who have direct contact with clients and 'back-offices' who feed these front-office advisors with the necessary information (Labarthe, 2009).

More complicated or complex problems often involve issues that have not been dealt with before, and in which know-how is important (Smedlund, 2008). These often require a recombination of existing knowledge or new knowledge creation and hence require a distributed network or a decentralised network. A distributed network resembles a 'community of practice' (CoP) (Lave and Wenger, 1991) consisting of peers from the same profession which over time builds its own meanings and values, and in which there is a lot of tacit knowledge exchange (Robertson et al., 2003; Smedlund, 2008) and in which there is much bonding social capital. In such a CoP, advisors can use the experience of their peers to find a solution in a certain situation. This can be done both through formal meetings (Werr and Stjernberg, 2003), and informal 'coffee machine' meetings (Fosstenlökken et al., 2003). Where a distributed network has a looser structure, it may be characterised as a 'network of practice' (NoP). Unlike a CoP, which is based on strong ties between members, a NoP is characterised by looser ties and is based on bridging social capital. While members of a NoP may not know each other well or even have met, they share common activities and culture and are capable of exchanging knowledge and identity. Crucially, within a distributed NoP, one might expect to find a heterogeneous group comprising of advisors from different professions, who are linked as a result of a shared problem or client.

A decentralised network explicitly links those outside established communities of and networks of practice, to enable individuals to tap into previously unknown sources of knowledge. Smedlund (2008) refers to these as networks to obtain 'potential knowledge'. These networks enable consultants to come up with ideas to develop new services that they cannot get from within their established communities and networks of practice (Smedlund, 2008). This is because the common language and values within a CoP or NoP may exclude certain avenues for obtaining new knowledge and the development of new services (Heusinkveld and Benders, 2005). New opportunities for learning and fresh insights that enable service innovation often occur at the boundaries of a CoP or NoP (Oreszczyn et al., 2010). For example, it has been found that new clients, contacts with researchers and recent graduates starting their careers as advisors may give established consultants new insights (Werr and Stjernberg, 2003). Because a decentralised network involves contacts with people which are outside the established communities or networks of practice of advisors, and there may be boundaries in terms of culture, language, work procedures, often so-called boundary spanners or brokers are needed to exploit such 'weak ties' (Oreszczyn, 2010; Klerkx and Leeuwis, 2009) and create linking social capital. A conceptual framework derived from the theoretical framework combining network types and social capital is presented in table 1, which shows how the know-who of advisors can be viewed as comprising of several dimensions.

Table 1: Knowledge network types and social capital

Network type (according to Smedlund, 2008)	Social Capital	Network of Practice or Community of Practice	Type of Grouping	Identity
Centralised	Absent	Absent	No grouping	No identity
Distributed	Bonding/Bridging	CoP/NoP	Homogenous/Heterogeneous	Shared/Common
Decentralised	Linking	Different interacting CoP/NoP	Heterogeneous	Uncommon Few similarities

### 3. Aim, case description, and methods

The central aim of this paper is to shed new light on whether the concerns over fragmentation and disconnect (i.e. that advisors do not share knowledge anymore, that advisors are ill-connected to the science system) are fully justified. The main question which guided our enquiry was: what is the role and importance of 'know-who' for obtaining knowledge amongst field-based advisors? This paper is based on a mixed-methods study exploring the role of three groups of field-level advisors in England involved with certain aspects of land management: applied ecologists, land agents/surveyors and large animal vets. The intention was not to compare the professions, but to obtain a richer picture and more representative insights. We found advisors from all three professions operating across the public, private and third sector. Advisors were selected through snowball sampling from contacts provided by an advisory group comprising of active field-based professionals, which was established to support the research project. The empirical research, which was conducted between 2008 and 2010 involved ethnography, including periods of work shadowing and observation of advisors as well as 61 in-depth, semi-structured interviews with advisors, land managers and representatives of professional associations and training bodies. Work shadowing of advisors was carried out with consent from all those involved in the encounter. Field notes were made during the observation and written up immediately after. The interviews (each approximately an hour long) were recorded and transcribed; all interviewees have been anonymised. All the data has been analysed and coded following a grounded theory approach (Strauss and Corbin, 1990), which implies that theory has informed the coding process using concepts of social capital and the three network types (centralised, distributed, decentralised), and empirical findings have informed reflection upon and broadening of the theoretical framework.

### 4. Findings

Field advisors spend a significant proportion of their time working on a one to one basis with their clients. From our data it became apparent however that they are always operating within wider networks which they draw upon in order to obtain knowledge. These were found to be broad-ranging, falling into three main communities or networks as outlined by Smedlund in his typology (Table 2). The findings suggest that advisors utilise and draw upon all three network types to organise the process of obtaining the knowledge necessary for offering adequate advisory services to their clients. From table 2 we can distil how the networks which advisors draw upon for renewing and updating their knowledge have the potential to extend across different communities, including those operating within and outside of the advisors' own professional community. A few key trends are apparent here; of the three professions, vets are most prominent in operating within decentralised networks. All three professions draw upon distributed networks, comprising a range of advisors from professions the same as and different to their own, with some overlap in the interactions of land agents and ecologists in particular. We have

established which individuals are included in the ‘know-who’ of the three different groups of field advisors. We now need to consider the reasons for them drawing upon these different networks for different knowledge needs and requirements. In the sections which follow, we explore the ways in which the different networks may contribute to advisor knowledge. We explore how these processes of knowledge exchange work in practice, including the types of knowledge being exchanged and the different types of interaction which facilitate exchange.

*Table 2: The knowledge networks of land management advisors*

Profession	Centralised Networks	Distributed Networks (professional)	Distributed Networks (cross-professional)	Decentralised Networks
Vets	Websites (internet and intranet systems), books, journals, professional publications, magazines and circulars etc	Colleagues Vets within wider professional circle Veterinary specialists/ consultants	Nutritionists Buildings Consultants Farriers Professional associations including British Veterinary Association (BVA) Royal College of Veterinary Surgeons (RCVS)	Pharmaceutical companies Veterinary Laboratories Agency (VLA) Vet Schools Research Institutes
Land agents	Websites (internet and intranet systems), books, journals, professional publications, magazines and circulars etc	Colleagues Agents within wider professional circle	Accountants Lawyers Ecologists Regulatory agencies e.g. Rural Payments Agency (RPA), Natural England Professional associations including Royal Institution of Chartered Surveyors (RICS) and Central Association of Agricultural Valuers (CAAV)	Researchers and educationalists at colleges and universities
Ecologists	Websites (internet and intranet systems), books, journals, professional publications, magazines and circulars etc	Colleagues Ecologists within wider professional circle Wildlife specialists/ consultants	Land agents Historic Environment Advisors Officers from National Park Authority and Areas of Outstanding Natural Beauty Rights of Way officers Professional associations including the Institute of Ecology and Environmental Management (IEEM) and the Society for the Environment	Ecologists at universities

#### 4.1 Centralised networks

According to Smedlund’s typology, KIBS firms are said to rely upon a centralised network for routine problem solving (aimed at solving common problems which have a well-known solution space, e.g. on well-known diseases management) and keeping up-to-date on the latest developments in their subject areas (i.e. explicit knowledge for developing know what and know why). CoP and NoP are absent in these types of network. In the case of our land management advisors, the process of obtaining the knowledge necessary for offering adequate advisory services to their clients did rely to some extent on explicit knowledge stored in databases and documents. Advisors updated their knowledge through channels including books, journals, magazines and circulars. These sources enabled advisors to update both their regulatory and scientific knowledge. Professional associations were found to be key referencing and referral

mechanisms for all three groups of advisor. Advisors drew upon professional journals and other officially produced documents and guidance. These associations play a significant role in synthesising and filtering latest research, regulations and policy for their memberships. Electronic resources were also utilised. Advisors talked about using the internet and also the intranet systems of their company or professional association in order to obtain information for more routine problem-solving and for keeping up-to-date on legislative changes and new regulations. Some recognised the value of information held in this way, as it enabled them to access a dispersed body of information relatively easy, including linking disparate advisors via intranet systems. Others were more sceptical however, as use of the internet and intranet systems was considered time consuming for finding the right information and turning explicit knowledge into implicit knowledge. Moreover, advisors based within larger organisations complained that a lot of the explicit, collective knowledge held within their organisational database was wasted or not shared easily.

From the data it emerges that advisors do rely on formal centralised networks organised internally through their own organisation, or externally by a professional association or other organisation, for informing and updating some of their knowledge. However, it also became apparent that while these resources are well used and on many occasions helpful, many advisors complained about the time required to access or find information contained within such systems. Also, it appears that these centralised networks are used more for keeping up-to-date with recent developments, for example in legislation, than informing routine problem solving. Centralised networks are generally confined to advisors from the same professions, largely the same organisations, and while there might be strong bonds and trust between advisors as a result of operating within these closeknit communities of practice, in these centralised network there is little evidence of bonding and bridging social capital to facilitate such networks given that they rely on written and electronic information sources ; social capital is much more apparent in distributed and decentralised networks.

#### **4.2 Distributed networks**

KIBS firms are said to draw upon distributed networks for more complex problem solving involving tacit knowledge exchange amongst peers, colleagues and clients. Indeed, most advisors stated that it was their personal contacts, i.e. their informal 'know who' which was most influential in obtaining knowledge for problem-solving purposes (i.e. in response to a certain query for advice by a client). However, these networks were also used for keeping informed and up-to-date on recent developments in land management. As outlined in table 2, the findings revealed two distinct types of distributed networks where advisors rely on 'know who' for obtaining knowledge to tackle certain more complicated problems: professional networks and cross-professional networks. Professional networks are largely based on interactions between advisors working within the same profession and can operate at a firm, organisational or profession level. At its most informal, advisors talked about the importance of learning from colleagues through face to face encounters within the office environment for problem-solving and sharing best-practice. Advisors talked about working as part of a team, for example, speaking to more senior colleagues or 'in-house' experts or specialists for certain problems that needed greater attention. Processes of mentoring were also apparent across all three professions. New entrants described how both formal and informal mentoring from more experienced colleagues within their firm, practice or organisation assisted in resolving more complex problems and provided second-opinions in difficult cases. Interestingly, a number of experienced vets noted that their relationship with trainee and recently qualified vets was reciprocal, with one interviewee

indicating that newly qualified vets “tend to bring scientific knowledge with them” from their university training. Knowledge exchange within these professional networks also extended beyond the confines of a firm to colleagues working within the same profession but at different firms or working for the same organisation but at different branches or locations. Relationships often developed from informal exchanges. Conferences, programmed continuing professional development (CPD) training and meetings of specialist or local and regional divisions were also frequently cited as being crucial in contributing to obtaining knowledge among all three professions. These professionally mediated events were crucial for linking up individuals working across different parts of the same organisation and across different organisations.

The second type of distributed network which became apparent from the findings was based around cross-professional working. This is based on interactions between advisors from different professions. This particular type of advisor-advisor interaction was found to be increasingly prominent amongst all three case study professions yet critically, it hasn't been considered in any detail in the literature. These broader networks of practice based on bridging social capital, comprise of heterogeneous groupings of advisors who may not share a common professional identity but often share a common client or problem or issue which links them within this particular type of network. Experienced advisors had built up networks of contacts with other professions and drew upon these to access new and different types of knowledge and expertise situated outside of their immediate CoP. In some cases this interaction was the result of advisors from different professions working together within large multi-disciplinary firms e.g. one large land agency also employed an ecologist who worked with land agent colleagues on cases or advisors meeting at training events which target multiple disciplines. However, in most cases this multi-professional working is based around a common client, for example, a vet working with a nutritionist on behalf of a land manager to resolve a particular issue or a land agent working with a renewable energy consultant on a wind turbine application. This joint working also occurred as part of contracting networks where one advisor would contract in another from a different profession to perform a specialist function. Sometimes this kind of working would result in extended networks of advisors collaborating as part of contracting arrangements. The orchestration of advisors working within complex networks is exemplified well with the application process for agri-environmental schemes. We found examples where farmers work with a land agent and a Natural England agri-environment advisor but in turn, these advisors contract in a number of additional specialists (e.g. Ecologists, Historic Environment Advisor, wildlife specialists) whose existence may or may not be known to the land manager. Essentially then, a number of key advisors (which may vary from situation to situation) are using their 'know who' and acting as network brokers. Thus, they co-ordinate the activities of a much wider number of advisors, all operating within what are often hidden networks to support decisions over land management. Advisors talked about the benefits of cross-professional working for themselves, in broadening their knowledge and for land managers, providing a more comprehensive and integrated service for clients. While some advisors talked about working 'hand-in-hand' and in tandem with other advisors and finding the experience enjoyable, others talked about some of the challenges that this type of working presents. Here, the importance of having defined roles and creating a shared language clearly emerges from the interviews. Cross-professional working in particular, requires advisors to be open to each-others' professional codes of practice and epistemology. Balancing collaboration and competition appeared to be a challenge, with advisors expressing concerns about how advisors from another profession might encroach on their professional territory, the tactics employed within professions to protect specialist knowledge and balance collaboration and competition and how an advisor fights to maintain a role within these extended networks.

### 4.3 Decentralised networks

KIBS firms also rely on decentralised networks as a way of facilitating knowledge exchange with those outside established communities or networks of practice. This might involve knowledge exchange to support more complex problem-solving or to support the development of new ideas in order to achieve service innovation. In the case of the land management advisory professions, the findings indicated that advisors did indeed rely on decentralised networks in order to increase their knowledge and improve their ability to resolve a complex case. These networks comprise of individuals situated outside the established communities or networks of practice of advisors, who are unlikely to share a common identity (i.e. being in the same profession). When advisors encounter an unfamiliar problem that eludes their immediate colleagues also, then they are as likely to seek advice from their own personal contacts within the broader scientific community (as highlighted in table 2) as they are to consult the scientific literature. The vets stood out as drawing upon networks of academic and scientific contacts most prominently. These contacts often operate at a distance from the advisors and outside of their immediate CoP or NoP. A number of advisors explained how they tapped into external networks of expertise, referring to direct interaction with researchers/scientists (both public and private) at conferences, events, meetings and through one to one contact (via phone or e-mail) as part of the networks they rely on for complex problem-solving. Many of the advisors we interviewed were employed at small firms and it was clear that they relied on these decentralised networks for increasing their capacity, often at no additional cost. While our data does not show that they serve for generating new types of advisory services (i.e. service innovation), these external contacts with science do lead to new insights. As regards the way these contacts developed, this was both face to face (e.g. networking at conferences, drug company representatives visiting vets) or done remotely (via phone, e-mail). Advisors draw upon these networks for improving of their problem-solving skillsets. These are largely based on informal or casual enquiries though in some cases they might develop into a more formal business transaction. In the case of vets in particular, access to such experts often stemmed from contacts and peers made during their formal education.

The findings highlighted the key role played by the professional associations in facilitating some of these advisor-scientific expert interactions. Providing a more formal platform for advisors to build a decentralised network was key; for example, a number of land agents talked about the networking opportunities that came from attending branch meetings and conferences of their professional associations. Equally, academics recognised the value of such events for forging links with the professions. The results highlight how these complex ecologies of advisors are helping to support the introduction of scientific insights into land management however they do not support innovation of services.

### 5. Conclusion

The aim of this paper was to explore the know-who land management advisors employ in order to in order to up-date their knowledge in their field of expertise and in order to solve problems which they cannot solve by themselves. From the results it clearly emerges that much like in other types of knowledge intensive business service forms, land management advisors draw on several types of networks. While the privatisation of extension has resulted in pluralistic land management advisory systems, which to some extent can be called fragmented, our study suggests that these systems can develop a self-organising capacity to utilise this pluralism positively as (using Garforth et al.'s (2003) words) 'creative diversity'. While competition and epistemological and cultural differences do affect knowledge exchange, earlier assumptions on a 'collapse' of interaction within the broader land management advisory system are not supported by actual



practice: the advisory system does possess considerable social capital. However, further investigation is needed to assess whether these knowledge sharing networks have the same efficiency as previously public structures, and what are transaction costs. This paper has demonstrated that advisors engage in different communities and networks of practice, for different types of queries and service demands they encounter. These networks are often based around tacit knowledge exchange and are drawn upon for both routine and complex problem solving. They can be professional or cross professional in nature, operating across different professional spheres. The paper has also revealed how professional associations and other broker organisations fulfil an important role in supporting and facilitating the formation of especially bridging and linking social capital in the land management advice professions. These organisations perform an important and catalysing role where informal networks do not automatically form due to blockages of a spatial, competitive or epistemological nature. In view of the policy debate on how to stimulate adequate advisory systems, stimulating this more formalised broker role could be one of the focus points.

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