

# The Paradox of Using Tacit and Explicit Knowledge: Strategies to Face Dilemmas

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# The paradox of using tacit and explicit knowledge

## Strategies to face dilemmas

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### Abstract

**Purpose** – This paper contrasts two perspectives on the distinction between tacit and explicit knowledge: on the one hand, the perspective that categorises knowledge as belonging to either one or the other class; and, on the other hand, the perspective that views knowledge type as a graded continuum.

**Design/methodology/approach** – The paper explores the extensive literature on the topic, and from this literature engages in conceptual development.

**Findings** – The paper adopts the view that the continuum perspective, in which knowledge in a particular context has both tacit and explicit characteristics, is of particular value when considering the knowledge strategy of an organisation. Whereas the former perspective presents a well-known dilemma, the continuum perspective permits the specification of a strategy in which the advantages of both tacit and explicit knowledge can, in principle, be obtained. One such strategy might be one that renders organisational knowledge as internally explicit, but externally tacit.

**Originality/value** – The paper develops a view of the explicit/tacit dilemma that leads to a possible way forward in resolving the dilemma for organisations.

**Keywords** Knowledge management, Corporate strategy

**Paper type** Conceptual paper

### Introduction

In post-industrial society, the knowledge within an organisation is frequently identified as the main source of its competitive advantage (Kogut and Zander, 1992; Prahalad and Hamel, 1990; Starbuck, 1992; Nonaka, 1994; Nonaka and Takeuchi, 1995). In the early 1990s, Drucker (1993) observed that, for the emerging knowledge-based economy, the traditional primary resources of production (land, labour, and capital) were becoming secondary to knowledge. This was echoed by Nonaka (1994), who suggested that knowledge was the single most important production factor in terms of the capacity of an organisation to survive and, subsequently, the means of its gaining and sustaining competitive advantage. The point has been underscored by others (Quinn, 1992; Grant, 1996; Quinn *et al.*, 2004; Solow, 1997; Stewart, 1997; Sveiby, 1997; Thurow, 1997). As Quinn (1992, p. 241) put it:

... with rare exceptions, the economic and producing power of the firm lies more in its intellectual and service capabilities than its hard assets – land, plant and equipment ... virtually all public and private enterprises- including most successful corporations – are becoming dominantly repositories and coordinators of intellect.

Against this backdrop, academics and practitioners have shown a strong interest in understanding various aspects of managing knowledge, such as the distinction between tacit and explicit knowledge (Polanyi, 1967; Nonaka, 1994; Nonaka and



Takeuchi, 1995; Jasimuddin, 2004), the transfer of knowledge (Szulanski, 1996; Connell *et al.*, 2003; Smith and McKeen, 2003), the knowledge creation process (Nonaka and Takeuchi, 1995), the storing of knowledge (Huber 1991; Walsh and Ungson, 1991; Stein, 1995; Scarbrough, 1995; Stein and Zwass, 1995) and the social aspects of knowledge (Brown and Duguid, 1991; Spender, 1996).

However, there are still many gaps in our understanding of organisational knowledge and its implications for firms and managerial practices, particularly how it might “transform” organisations. Among the questions that still remain unresolved is one that arises from the categorisation, and subsequent utilisation, of tacit and explicit knowledge. This issue seems to be one of the key organisational problems that firms encounter, and that managers have to address. Our contention is that it would be easier to utilise the transformational potential of organisational knowledge if we can recognise a range of different strategies for knowledge management, and understand how these strategies relate to one another. Failure to recognise the implications of such strategies may undermine our efforts to use knowledge more effectively.

Our purpose in this paper is to highlight the implications of knowledge management strategies for firms and to indicate how the dilemmas of choice of strategy might be resolved. In particular, the strategic choice of making organisational knowledge more accessible, perhaps by converting tacit to explicit knowledge, provides organisations with a dilemma; tacit knowledge is less vulnerable but less accessible by legitimate organisational users, whilst explicit knowledge is more accessible but also more vulnerable to illegitimate exploitation.

This paper begins by reviewing the relevant and extensive literature to identify the roots of this paradox. It continues by cautioning against over-emphasising one type of knowledge while neglecting the other, and prescribes a strategy that encourages the use of both tacit knowledge and explicit knowledge in complementary ways so as to enhance the competitive advantage of the firm.

### **Knowledge as a category versus knowledge as a continuum**

The categorisation of knowledge into that which is explicit and that which is tacit is well known. To date it seems that two dominant perspectives on the relationship between tacit and explicit knowledge have emerged: knowledge as a category and knowledge as a continuum. Hislop (2002) labels these respectively as embodying objectivist and a practice-based philosophies of knowledge.

The knowledge-as-a-category viewpoint is embedded in the vast majority of current literature on organisational knowledge (e.g. Hedlund, 1994; Nonaka 1994; Spender, 1996; Leonard and Sensiper, 1998; Pan and Scarbrough, 1999; Bolisani and Scarso, 2000; Roberts, 2000). This perspective suggests that tacit and explicit knowledge represent two separate types of knowledge having distinct features. This dichotomy is one of the most widely accepted distinctions between different types of knowledge, and represents one of the earliest attempts to classify organisational knowledge. Tacit knowledge, as originally characterised by Polanyi (1958, 1967, 1969), is constructed from individuals' own experience in the world and forms the basis for explicit knowledge.

Reflecting this view, Nonaka and Kanno (1998) argue that tacit knowledge represents knowledge that people possess, while explicit knowledge, on the other hand, represents knowledge that can be codified in a tangible form. Tacit knowledge is embodied in the human brain and cannot be separated from the people who possess it; it derives from the

background and experience of the individuals who possess it and is thus highly idiosyncratic (Dixon, 2000; Roberts, 2000). As a consequence, it is more difficult and costly to access and transfer than explicit knowledge. In contrast, explicit knowledge can be codified, documented and transmitted, making it easily and cheaply available to large numbers of people at little or no marginal cost (Roberts, 2000). Polanyi suggests that the knowledge that can be expressed explicitly is only a small part of the whole body of knowledge; he proposes that “we know more than we can tell” (Polanyi, 1967, p. 4).

The distinctive features of tacit and explicit knowledge, as dichotomised by the knowledge-as-a-category perspective, are shown in Table I. Hislop (2002) contends that tacit knowledge and explicit knowledge have fundamentally different and distinctive characteristics, which significantly influence the ways in which they can be shared.

The alternative view of knowledge recognises it as a continuum. Notwithstanding that tacit and explicit knowledge exhibit the features depicted in Table I, many scholars (e.g. Brown and Duguid, 1991; Lave and Wenger, 1991; Kogut and Zander, 1992; Boland *et al.*, 1994; Blacker, 1995; Spender, 1996; Tsoukas, 1996; Lam, 1997; Cook and Brown, 1999; Boiral, 2002; Hall and Andriani, 2003) have advocated that tacit and explicit knowledge should not be seen as two separate types of knowledge. Instead, it is suggested that all knowledge has both tacit and explicit components. Kogut and Zander (1992), for example, comment that knowledge is not strictly polarised between the explicit-tacit dichotomy, but exists along a continuum of tacitness and explicitness. In parallel with this, Boland *et al.* (1994) treat tacit and explicit knowledge as the extremes of a continuum. Along similar lines, Hall and Andriani (2003) envisage a spectrum of knowledge running from tacit knowledge at one extreme to explicit knowledge at the other. From the knowledge-as-continuum perspective, tacit knowledge and explicit knowledge are the poles of a knowledge spectrum.

Using tacit and explicit knowledge

Focusing on knowledge-as-a-category, several researchers, including Sanchez (1997), Hansen *et al.* (1999) and Connell *et al.* (2003), suggest two very different strategies in

| Features                                                                           | Tacit knowledge (i.e. skills and experience of employees) | Explicit knowledge (i.e. documents, codes, tools) |
|------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------|
| Content (Polanyi, 1967; Hu, 1995; Nonaka and Kanno, 1998)                          | Non-codified                                              | Codified                                          |
| Articulation (Spender, 1995)                                                       | Difficult                                                 | Easy                                              |
| Location (Polanyi, 1958, 1967)                                                     | Human brains                                              | Computers, artefacts                              |
| Communication (Ambrosini and Bowman, 2001)                                         | Difficult                                                 | Easy                                              |
| Media (Boje, 1991; Connell <i>et al.</i> , 2003; Johannessen <i>et al.</i> , 2001) | Face-to-face contact, storytelling                        | Information technology and other archives         |
| Storage (Boiral, 2002; Connell <i>et al.</i> , 2003)                               | Difficult                                                 | Easy                                              |
| Strategy (Hansen <i>et al.</i> , 1999)                                             | Personalisation                                           | Impersonalisation                                 |
| Ownership                                                                          | Organisation and its members                              | Organisation                                      |

Table I.  
Salient features of tacit and explicit knowledge

order to manage knowledge. The personalisation strategy, which tends to focus on tacit knowledge, addresses the storage of knowledge in human minds and its transferring through person-to-person interface (through activities such as storytelling). The codification strategy, which focuses chiefly on explicit knowledge, allows knowledge to be carefully codified and stored in databases where it can be made easily available to use. As Connell *et al.* (2003, p. 141) have observed, personalisation can appear to offer more than the codification view for managing intellectual capital.

Hansen *et al.* (1999) argue along similar lines, noting that the personalisation strategy is an approach where knowledge is closely tied to the person who developed it and is shared mainly through direct person-to-person interaction, while in the codification strategy knowledge is carefully codified and stored in databases, where it can be accessed and used easily by anyone in the organisation. They maintain that the personalisation strategy provides creative, analytically rigorous advice on strategic problems by challenging individual expertise, while, in contrast, the codification strategy provides fast implementation by reusing articulated knowledge. However, researchers agree that whether tacit or explicit knowledge is central to the strategy of an organisation, there are both negative and positive impacts (see Figure 1).

Several authors, most notably Spender (1995), Alvesson (2001), Ambrosini and Bowman (2001), Johannessen *et al.* (2001), and Hall and Andriani (2003), identify several benefits that a firm can gain from using tacit knowledge. Spender (1995), for example, contends that tacit knowledge held by the organisation is the most secure and strategically significant kind of knowledge since other organisations would find it difficult to understand and imitate. In this connection, Johannessen *et al.* (2001, p. 13) remark that tacit knowledge acts as an “imitation guard”, while Hall and Andriani (2003) characterise it as “externally safe”. This view is an extension to that of Ambrosini and Bowman (2001, p. 826), who contend that the principal reason why tacit knowledge has been argued to be a source of sustainable advantage is because of its immobility and inimitability.

Another advantage enjoyed by an organisation using tacit knowledge is that such knowledge is ambiguous in nature. The ambiguity also makes duplication of the knowledge difficult (Hall and Andriani, 2003). McEvily *et al.* (2000) argue that when casual ambiguity is reduced, a firm’s performance advantage may be eroded. Other researchers identify other benefits that a firm can gain from using tacit knowledge in terms of its contribution to innovation (Alvesson, 2001) and low investment in information technologies (Johannessen *et al.*, 2001).

However, tacit knowledge is not free from difficulties. An organisation cannot store such knowledge beyond the mind of individuals without some process of articulation, it is difficult to communicate to others, and it can, at best, be difficult to digitise (Ambrosini and Bowman, 2001; Johannessen *et al.*, 2001; Boiral, 2002; Connell *et al.*, 2003). There is a reluctance to share tacit knowledge due to fear of losing power and status (Szulanski, 1996), and intellectual property rights provide little practical protection of such knowledge (Teece, 1986; Hall and Andriani, 2003). However, the most serious and distinctive problem an organisation faces in using tacit knowledge is the risk of losing such knowledge due to loss of employees. As Boiral (2002, p. 296) puts it, “the displacement of people translates into a loss of tacit knowledge”; Hall and Andriani (2003) say the use of tacit knowledge makes a company “internally vulnerable”.

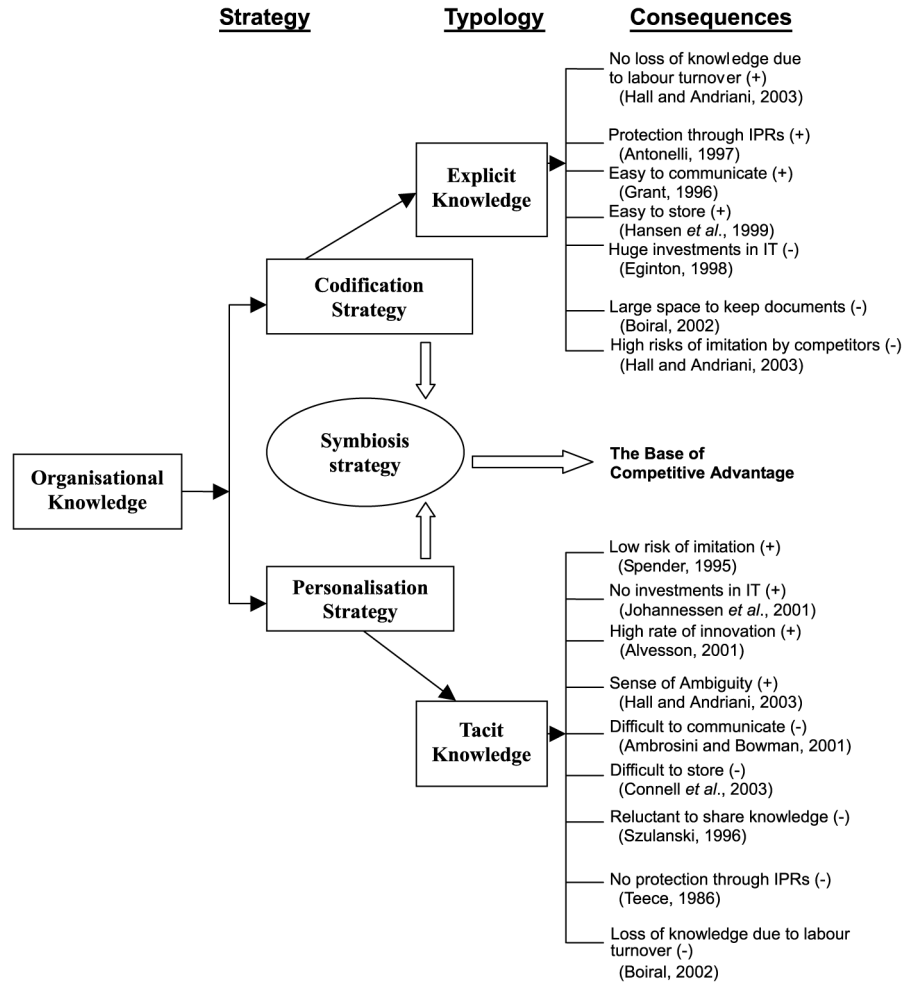


**Figure 1.**  
Possible organisational  
implications of knowledge  
strategies

Explicit knowledge, on the other hand, is easily communicable and easy to store because such knowledge is codified. There is little chance of losing explicit knowledge due to employee turnover because such knowledge is articulated, codified, and available in organisational repositories. Such knowledge can be accessed and used easily by anyone in the organisation (Grant, 1996; Hansen *et al.*, 1999). In this regard, Hall and Andriani (2003) comment that explicit knowledge is “internally safe”. Since it is open, it can be protected through intellectual property rights (Teece, 1986; Antonelli, 1997; Hall and Andriani, 2003).

However, if information technology is exclusively used to store and retrieve explicit knowledge, a considerable investment must be made. During the past decade, many organisations have invested heavily in electronic systems, hoping to increase their

ability to manage the vast array of knowledge they possess (Eginton, 1998; Sbarcea, 1998). Alternatively, a vast space is needed to keep documents (hard copy). In this regard, Boiral (2002) argues that codifying knowledge can involve high expenditure and lead to excessive documentation. However, the main difficulty in using explicit knowledge is that there is high risk of imitation by competitors, leading to loss of potential or actual competitive advantage. Hall and Andriani (2003) observe that explicit knowledge is “externally vulnerable”.

### **The tacit-explicit paradox**

This, then, is the tacit-explicit paradox: efforts by an organisation to articulate and make explicit its knowledge enhance the potential for imitation and consequent loss of value of the knowledge, while retaining knowledge in tacit form makes the organisation vulnerable to loss of the knowledge if its holders, for whatever reason, leave. Neither strategy truly protects the organisation, which faces a fundamental dilemma. Following a personalisation strategy focusing on tacit knowledge provides external protection but internal susceptibility. Adopting a codification strategy focusing on explicit knowledge internally protects the knowledge, but leaves externally susceptible. Formulated in this fashion, the paradox leads to the question of which strategy is best for an organisation in particular circumstances.

### **The design of a knowledge strategy**

Several scholars argue that tacit knowledge occupies the central role in the development of sustainable competitive advantage (Nonaka, 1991; Grant, 1996; Spender, 1996). We consider, however, following Johannessen *et al.* (2001), that both tacit and explicit knowledge are crucial organisational resources. Johannessen *et al.* (2001) contend that the knowledge base of an organisation is both tacit and explicit, and that over-emphasising one at the expense of the other may lead to a situation where the organisation loses its competitive edge. Tacit and explicit knowledge are inseparable. Their relationship can be likened to the portions of an iceberg above and below the waterline: the exposed explicit knowledge is supported – given meaning – by the hidden tacit knowledge. Unlike an iceberg, however, the proportions that are exposed and hidden can vary from instance to instance. The position of knowledge on the tacit-explicit continuum is determined by its tacit-explicit mix. Neither the personalisation strategy nor the codification strategy alone is sufficient to manage organisational knowledge.

Personalisation and codification approaches need to be integrated so that the benefits of both tacit and explicit knowledge can be gained. Accordingly, an organisation should seek an integrated approach to knowledge management that ensures the interaction of the strategies: a symbiosis strategy. A survey conducted by Edwards *et al.* (2004) supports this argument. In their study, 83 per cent of respondents disagree with the statement that an organisation cannot use both collaboration (network) and codification KM strategies together.

A successful symbiosis strategy is one that takes advantage of the positive features of both the personalisation and codification strategies. To explore how such a strategy might be achieved, we suggest that the mix of tacit and explicit knowledge that any instance presents is subjective: a function of the perceptions of the observer. In terms of the iceberg analogy presented above, different proportions of the iceberg are exposed

to different observers. What we require is a strategy that renders certain categories of knowledge highly explicit to legitimate observers (those within the organisation), but highly tacit to illegitimate observers (those outside). If knowledge within the organisation is perceived as explicit, the organisation can protect itself from loss of knowledge due to loss of personnel. If, at the same time, the knowledge is perceived as tacit outside the organisation, this protects the organisation from leakage of knowledge.

The above can be realised in practice by development of an appropriate organisational culture. A successful symbiosis strategy would be based upon an organisational culture that is conducive to easy knowledge replication within the organisation but presents difficulty in imitation by competitors. Such a culture needs to be strong and pervasive within the organisation, but at the same time idiosyncratic and unique to the organisation. An idiosyncratic organisational culture provides a language or code in which knowledge can be exchanged. For subscribers to the culture, the exchange takes place in terms of explicit knowledge, because its tacit components are embedded within the culture and are understood by its members. To outsiders, the knowledge that the insiders work with appears tacit in nature, for they do not possess the cultural key to decoding it as explicit knowledge.

The observation that the extent to which knowledge is tacit or explicit is dependent on observing conditions is made by Hall and Andriani (2003), who note that “until the system of bass and treble clef notation was devised the knowledge of music could only be acquired by direct experience”; hence musical knowledge, they argue, was shifted from a strongly tacit to a strongly explicit position on the tacit-explicit continuum around the twelfth century. While Cook (1998) argues that no musical notation captures all musical knowledge, the point is nevertheless well made (see also Goodall, 2001). However, we can extend their point by noting that, for the observer who cannot read musical notation, musical knowledge is still fairly tacit (Klein *et al.*, 2003). The extent to which an individual has assimilated the appropriate cultural codes determines his or her ability to interpret knowledge. Sims and Doyle (1995, p. 120) describe how, in an approach to assisting managers in coping with complex issues known as cognitive sculpting, the everyday objects used in the approach “become a shorthand, even an argot, for participants to refer concisely and precisely to a complex of ideas already shared, but only by the in-group”. To the participants, references are communicating precise ideas in an explicit manner; to outsiders, the explicit content of the communications is nonsensical, and its intended message is tacit and inaccessible. Lave and Wenger (1991, p. 98) make a similar point, more generally, about communities of practice: “a community of practice is an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage”. Brown and Duguid (1991, p. 48) describe the process of learning within the context of a community of practice as one in which learners “acquire that particularly community’s subjective viewpoint and learn to speak its language ... they are enculturated ... acquiring ... the embodied ability to behave as community members”. This enculturation provides a context in which members of the community can practice, and, crucially from our point of view, exchange knowledge about practice, in a manner which is comparatively meaningless to outsiders, apparently relying on a great deal of tacitness, but is fairly explicit to insiders. Elsewhere, Brown and Duguid (2002, p. 430) make the point that “emerging

knowledge (the sort of knowledge that is critical to innovation) ... is intelligible only among close groups" until it becomes "standardized, embedded in products ... and part of widely acknowledged practices", arguing that, contrary to popular predictions, despite the globalisation of information, innovative knowledge is intrinsically local.

The protective nature of the culture we envisage would be reinforced by the development of a high level of trust within it, enhancing both the willingness of organisational members to share their tacit knowledge among themselves, and at the same time make them reluctant to disclose their knowledge to outsiders (so as to retain the trust of their fellows). Furthermore, top management should drive the development of the culture; top management support usually entails initiating, funding knowledge networks and projects, as well as developing skills to apply any strategy (Mayo, 1998). The organisation should offer attractive incentive and compensation packages and adopt appropriate contractual strategies so that employees neither leave nor transfer their knowledge to competitors.

### Conclusion

In the literature both perspectives – knowledge-as-a-category and knowledge-as-a-spectrum – have received attention in describing the ways in which tacit and explicit knowledge are conceptualised. This paper firmly advocates the spectrum approach, in which tacit and explicit knowledge are considered inseparable and organisational knowledge exists along a continuum of tacitness and explicitness.

To resolve the dilemma posed by the tacit-explicit paradox, we suggest the development of a symbiosis knowledge management strategy premised on the proposition that an organisational culture should be developed in which, as far as possible, valuable organisational knowledge is internally explicit but externally tacit. The symbiosis strategy would integrate personalisation and codification strategies, on the one hand codifying knowledge internally, but, on the other, treating the codes themselves as personalised and tacit. The effect would be to create an environment that eases knowledge replication within the organisation but at the same time makes imitation difficult for competitors.

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