The Tacit Knowledge Advantage

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Abstract: Most businesses do not understand the knowledge conduit and hence focus on data or information rather than knowledge. This means their focal point is on the past or the present, rather than the future. An advantage accrues when a company learns to tap its tacit knowledge, and metamorphose it into explicit knowledge that remains as proprietary intelligence. It is then operating on a higher plane, which allows it to predict outcomes, adapt to changing circumstances, and above all to be innovative. A company’s ability to utilise tacit knowledge will always give it a leading edge in the market place.

Keywords: knowledge conduit, tacit knowledge, explicit knowledge, data, information, enrichment, codification, osmosis, diffusion, organisational learning.

Introduction

In the late 1980s the outdoor billboard industry was slowly dying because it was reliant on painters to create the image on-site by brush, or expensive lithographs were used to print sheets off-site that were then glued onto the billboard. Both of these methods were labour intensive and expensive. However in 1991 Metromedia Inc. linked a personal computer, with desk top publishing capability, to a giant inkjet lithograph printer. This meant that a 4-metre by 16-metre billboard could be digitally spray painted in three or four hours with precision accuracy, and that a one-off run was economically feasible. Metromedia Inc. has since become a multi-million dollar business (Hruby 1999).

Ben & Jerry’s Homemade Inc. is an ice-cream industry that had a humble beginning in a renovated petrol station, and enjoyed considerable success until the early 1990s. By 1994 sales were flat and the company share value was half it’s 1992 stock market worth. This was due in part to a new consumer focus on health foods. Ben & Jerry’s engaged their staff and customers to determine how they could improve their product. The result was that the company used their ice-cream industry know-how to create a new line of frozen fruit yogurts. Today Ben & Jerry’s have an annual turnover in excess of $140 million dollars (Wheelen and Hunger 1998).

The common theme in these two short examples is that ailing businesses were able to achieve massive turnarounds by capturing and utilising the good ideas of their employees: they were mobilising tacit knowledge. It is my contention that a company’s ability to utilise tacit knowledge will give it a leading edge in the market place. This paper explores that contention, but first it is necessary to define exactly what I mean by ‘knowledge’ and ‘tacit knowledge.’
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The Knowledge Conduit

The literature provides many definitions of knowledge, all of which build the concept from data, to information, to knowledge. Some of the literature takes this one step further and expands knowledge to understanding and wisdom; however there is little agreement as to a precise definition of knowledge (Håkanson 2001). Indeed, data and information are often used interchangeably, and information and knowledge are used as synonyms.

To overcome this problem I shall use a model, which I call the ‘knowledge conduit,’ to explain my notion of knowledge. Then I will use the model to make obvious why the ability to utilise tacit knowledge will give a company a leading edge in the market place. Figure 1 shows the model.

![The Knowledge Conduit](image)

Figure 1: The Knowledge Conduit

The Descriptive Domain – Data and Information

First, you should observe that there are two distinct domains – the descriptive domain and the predictive domain – and that data and information belong to the descriptive domain. For the purposes of this paper I shall define data as being ‘a set of discrete, objective facts existing in symbolic form that have not been interpreted’ (Davenport and Prusak 1998). The symbolic form may be text, images, or pre-processed code. Data is usually organised into structured

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records, however it lacks context. The declaration ‘Iron melts at 1,538 degrees Celsius.’ is a data statement because it has no context.

When data is enriched by adding context it may become information. Information is data with a message, and therefore has a receiver and sender. It is data with relevance and purpose that is useful for a particular task (Liebowitz and Beckman 1998), and is meant to enlighten the receiver and shape their outlooks or insights (Davenport and Prusak 1998). Information results in an action that allows the data to be applied to a specific set of circumstances and to be employed effectively. Data only becomes information after it has been interpreted by the receiver. Furthermore information is descriptive. The statement ‘Newcastle steel-mill’s smelter temperature has been set at 2,300 degrees Celsius.’ conveys information because it has been enriched by context. The enrichment from data to information is a ‘know what and how’ procedure that results in an understanding of relationships and patterns. However, information by itself remains descriptive and without additional data or information it cannot be used to predict an event or outcome.

The Predictive Domain – Tacit and Explicit Knowledge

Information that moves further up the knowledge conduit may become knowledge. Davenport and Prusak (1998) say that knowledge is a fluid mix of data, experience, practice, values, beliefs, standards, context, and expert insight that provides a conceptual arrangement for evaluating and incorporating new data, information and experiences. Knowledge is therefore processed information in context and in action. It is descriptive, predictive and adaptive and can be applied to many situations (Kock, McQueen et al. 1997). Information only becomes knowledge after it has been examined and compared to other information or data, and is then applied to describe, predict or adapt to a situation. A ‘know how and why’ enrichment occurs with the addition of further context, experience and understanding, to result in an understanding of principles. The statement ‘If the steel-mill’s smelter temperature is set at 2,000 degrees Celsius, then all the iron in the smelter will melt in 30 minutes.’ represents knowledge, because it is both predictive and descriptive, has context, and demonstrates understanding.

In the knowledge conduit model, I have depicted knowledge as a cycle between tacit knowledge and explicit knowledge, aided by the codification and diffusion processes. The Macquarie Dictionary defines explicit as being something that it is definitive, clearly developed or formulated, and leaving nothing to be implied (Eurofield Information Systems 2002). Explicit knowledge is therefore clearly articulated, theoretically making it available to all and sundry.

Definitions in the literature of tacit knowledge include:

- that which is used by all people but not necessarily able to be easily articulated (Polanyi 1966);
- personal context-specific knowledge that is difficult to formalise, record, or articulate (Tiwana 2002); and
- the understanding held by an individual that is derived from the integration of values, perceptions, opinions and personal beliefs with experience and information, which allows it to be employed effectively (Nonaka and Konno 2000).
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For the purposes of this paper I shall use Tiwana’s definition, because we have already established that knowledge is an integration of data, experience, practice, values, beliefs, standards, context, and expert insight. We therefore need something that clearly differentiates tacit knowledge from explicit knowledge, and Tiwana’s definition does this.

I have placed tacit knowledge first on the ‘tacit to explicit cycle’ for a reason. If indeed knowledge is a synthesis of information, further context, experience and understanding, and I submit it is, then that synthesis has to occur somewhere. Synthesis occurs in the human brain, and can occur nowhere else because understanding and experience are psychological phenomena. If the result of that synthesis can be codified into text, images, or pre-processed code, and action is taken to articulate it, then tacit knowledge becomes explicit. If the synthesis can be codified but isn’t the knowledge is implicit tacit knowledge (Nickols 2000). The point is that information first has to be synthesised and then codified in order to metamorphose into explicit knowledge, hence tacit knowledge comes first.

The Feedback Loops – Osmosis and Diffusion

The knowledge conduit also has feedback loops from knowledge to information and data. These may be labelled osmosis and diffusion. Diffusion is well defined in the literature in a concept known as Codification and Diffusion Theory, or CD Theory (Boisot 1994). CD Theory posits that providing the receivers are receptive increasing codification will result in increasing diffusion of knowledge, until it becomes public or general knowledge. This is illustrated in Figure 2.
The process of diffusion can result in explicit knowledge being added to tacit knowledge, to produce yet more tacit knowledge that may, or may not be codified. Equally, it may disseminate to the data or information level in the descriptive domain, and then given new context, experience and understanding transform into tacit knowledge.

On the other hand, osmosis occurs when it is either not possible to codify the tacit knowledge, or the implicit component has yet to be codified. Osmosis therefore is an intangible human transfer of knowledge from one person to one or more others, such as a master musician may pass to a student. As for diffusion it may disseminate to the data or information level in the descriptive domain, and then given new context, experience and understanding transform into tacit knowledge.

How Tacit Knowledge Generates a Competitive Market Advantage

From the forgoing discussion it becomes obvious that the knowledge conduit and CD theory together provide an explanation why some companies are more competitive, and hence more successful, than others. The answer lies in the capture and exploitation of tacit knowledge, because each employee has a body of unique tacit knowledge. A formal way of capturing that tacit knowledge provides the ability to lever that knowledge and make it available to the business, because a concept can be codified, and once codified customised by the addition of further knowledge. To put it another way tacit knowledge is created, but once converted to explicit knowledge it can be commercialised (Skyrme 1999). This concept is illustrated at Figure 3.

![Figure 3: Tacit Knowledge to Commercial Advantage](image-url)
This is exactly what Metromedia Inc. did when it codified the tacit knowledge of an employee (how to use a giant lithograph inkjet printer), and linked and codified an idea of another employee (connect a personal computer, with desk top publishing capability, to the lithograph printer) to produce digitally spray painted billboards. Likewise Ben & Jerry’s Homemade Inc. were able to move up the knowledge conduit by converting tacit knowledge to explicit knowledge to realise a commercial advantage.

But how do companies capture tacit knowledge? The answer is they must engage in organisational learning, which begins with individual learning and the externalisation of tacit knowledge (Nonaka, Takeuchi et al. 1996). Organisational learning is the percussor to business intelligence, and a market advantage (Senge 1990; Senge, Kleiner et al. 2001). Organisational learning occurs when a business puts in place mechanisms that encourage employees to contribute to business goals, which is what Ben & Jerry’s Homemade Inc. did. These mechanisms include physical and virtual places to learn and exchange data and information, as well as hard and soft media, and a no-blame, supportive and encouraging culture. If these elements are present then the conditions exist for the externalisation of tacit knowledge, and its eventual codification and metamorphosis to explicit knowledge (Borghoff and Pareschi 1998). All these elements are present in both Metromedia Inc. and Ben & Jerry’s Homemade Inc.

The real business advantage accrues when the company can contain diffusion to keep new explicit knowledge at the propriety level, or the movement up the knowledge conduit is so fast that the value of public knowledge rapidly degrades. If a company can maintain the uniqueness of a product or service then it will have a higher gross margin. Uniqueness is maintained by exploiting tacit knowledge. This concept is illustrated at Figure 4.

![Figure 4: The Tacit Knowledge Advantage](image-url)
There are several things that you should note. First, a product or service can be classified as a unique, a specialty or a commodity, which corresponds with its market life cycle position. (Hruby 1999) A unique is a ‘first of kind’ product or service that occupies a niche market, whereas a commodity is generally available. The specialty sits between the two. A company that is positioned in the unique or specialty areas is exploiting tacit knowledge. Tacit knowledge is codified to become explicit so that a product or service can be delivered, but diffusion is not so great that the knowledge becomes public for all and sundry to use. Where tacit knowledge cannot be codified osmosis occurs and the knowledge remains with the company, providing the company is a learning organisation. Either way a market advantage accrues.

Second, whilst uniques and specialties have smaller sale volumes the gross margin is significantly larger than a commodity. This is because uniques and specialties represent either the only solution or an unusual solution. Furthermore precisely because they are atypical there a few competitors, meaning that there is demand advantage. As competitors enter the market value is siphoned off, because consumers buy substitutes (Hruby 1999). Once competitors learn how to provide the service or produce the product, because explicit knowledge has diffused so far that it has become public, the only means to compete is on the supply side by increasing volume and lowering price.

Clearly then, to gain or sustain a market advantage a business must exploit its tacit knowledge. Metromedia Inc. captured its tacit knowledge to produce a unique solution to a market problem. Ben & Jerry’s Homemade Inc. captured the tacit knowledge of their employees and customers to produce a new product - frozen fruit yoghurts. In both cases the capture of tacit knowledge allowed ailing companies to become uniques, and command a significant market advantage by being first of type. Both companies continue to prosper because they are learning organisations. Metromedia Inc. has diversified into digital billboards, and Ben & Jerry’s continue to produce exotic ice-creams and frozen fruit yoghurts based on employee and consumer ideas. Obviously they are still capturing and exploiting tacit knowledge.

**Conclusion**

The forgoing discussion has established that the capture and exploitation of tacit knowledge is the key to market dominance and continuing business success. Indeed one could argue that failure to exploit tacit knowledge will result in the eventual decline and extinction of an organisation.

The tacit knowledge advantage arises when a company moves up the knowledge conduit from dealing with data and information in the descriptive domain, to dealing with knowledge in the predictive domain. This means that the company’s focus shifts from describing the past or the present, and hence being reactive, to predicting the future which allows it to be adaptive or innovative. Furthermore, if it can convert it’s tacit knowledge to explicit knowledge it has

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2 Economic theory argues that, within a framework of scarce resources and competing objectives, the utilisation of goods and services depends on supply and demand. Supply is the quantity of goods or services providers are prepared to offer at a certain price. Demand is the quantity of goods or services that consumers are prepared to buy at a specified price. Mooney, G. (1986). *Economics, Medicine and Health Care*. New York, Harvester Wheatsheaf.
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the ability to commercialise that knowledge and perhaps produce a first of kind product or service, which then allows it to occupy a niche market and generate a larger gross margin. The real business advantage accrues when the company can contain knowledge diffusion to keep new explicit knowledge derived from tacit knowledge at the propriety level, or the movement up the knowledge conduit is so fast that the value of public knowledge rapidly degrades. In either case tacit knowledge provides the advantage.

References


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