

Knowledge Management Strategy – What Have We Learnt?

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Abstract: This paper picks up on the widely accepted personalisation and codification approaches to knowledge management strategy. It looks at the relationship between these knowledge management strategies and the competitive strategies that organisations have adopted, and by considering the strategy and manufacturing strategy literature, identifies a certain inconsistency between the discussions there and those in the knowledge management literature. It goes on to consider what examples in the literature have contributed to our knowledge of knowledge management strategies, and to highlighting the weaknesses in that knowledge, since these two “fundamental strategies” were first defined back in the 20th century. Aspects where the theory may benefit from being extended include: more precise consideration as to what a competitive position of “standardisation” really means, especially in the light of the expansion of so-called mass customisation; the three-way fit (or lack of it) between knowledge management strategy, competitive strategy and organisational culture, how these are developed, whether it is possible to change them if desirable, and if so, how; and the role of leadership in relation to different knowledge management strategies.

Keywords: Codification; Competitive Strategy; Knowledge Management Strategy; Mass Customisation; Personalisation

1. Introduction and background

It is widely accepted within the literature on knowledge management (KM) that there are two fundamental approaches to KM strategy: those of personalisation and codification. Personalisation takes the viewpoint that the organisation’s knowledge resides mainly in the heads of its people, and the main purpose of KM systems is to help people locate and communicate with each other. Codification takes the viewpoint that the most relevant knowledge for the organisation can be codified and stored in computer format, so that it may be widely shared. These two approaches were originally identified and proposed as fundamental by Hansen *et al* (1999), on the basis of research conducted initially with management consulting companies.

The two approaches were not, however, proposed as being mutually exclusive. The original study found that all management consultancies (the “early adopter” first sector examined) used both personalisation and codification strategies to some extent. Nevertheless, from analysing the success of KM initiatives, Hansen *et al* advocated that to achieve the most effective results, an organisation should commit itself principally (say 80%) to one strategy, with the other in a supporting role (say 20%). A “stuck in the middle” position, such as 50% use of each strategy, was to be avoided.

In KM terms, 1999 is quite a long time ago; more than half the lifetime of the discipline if we date it from the pioneering work of Wiig (1993). It therefore seems appropriate now to revisit the topic of KM strategy and consider what more we might have learnt about KM strategy in the seven years since then. In their paper, Hansen *et al* (1999) went on to identify these two main KM strategies as corresponding to different competitive strategies. Personalisation fitted a competitive strategy based on creative, individual solutions to high-level problems (examples given were McKinsey & company, and Bain & company). Codification, by contrast, fitted a business strategy based on high-quality standardised solutions usually relying heavily on information systems (examples given were Andersen Consulting – now Accenture – and Ernst & Young).

A further additional dimension that needs to be considered is the implementation of KM strategy. Whatever focus it might have, the strategy that comes from the senior management of the organisation must be matched by commitment coming from the rank and file. Moreover, KM is not something that can be implemented in a simple unitary fashion across a whole organisation. Different issues arise at work group or departmental level, and multi-national organisations face the further problems of differences between similar operating units in different countries. Can these issues be linked to the formulation and implementation of KM strategy more precisely than by an 80-20 rule of thumb?

In order to explore this topic, we begin by looking at the literature on organisational or competitive strategy itself, then review that on KM strategy, bringing in other contributions to add to the concepts

of personalisation and codification, and then discuss how the ideas about KM strategy and competitive strategy are related. We will go on to examine the factors affecting KM strategy in the light of this discussion, and draw some tentative conclusions.

2. Strategy

The most influential author on business strategy as far as current Business School teaching is concerned, is Michael Porter. His work was originally based on manufacturing, but was subsequently extended to all aspects of business. Porter looked at strategy in terms of three dimensions: the level of differentiation of the product or service, the cost of the product or service relative to those of the business's competitors, and the scope of the market that the business was targeting. His key contribution (Porter, 1980) was the identification of the three most effective generic strategies as cost leadership, differentiation and focus (also known as niche, or market segmentation). Porter identified that organisations should adopt one of these three strategies in order to compete effectively and achieve maximum profitability, shunning other possible strategic positions on the three dimensions mentioned earlier. These are shown in Figure 1. He also recommended that they should commit themselves to a single strategy, with the only allowable combination of the three being to pursue either low cost or differentiation within a focus or segmentation strategy. Where an organisation did believe that it would be more effective to adopt different strategies for different parts of its operation, Porter's recommendation was that these should be set up as separate strategic business units. The strategic business unit, therefore, is actually the level at which the "single strategy" recommendation applies.

In the generation since it was published, critiques of Porter's work have appeared quite frequently, but the view expressed in the literature is that these generic strategies still hold sway, even in the online world of e-commerce; see for example (Koo *et al.*, 2004).

However, the strategy literature is not as simple as might appear from the discussion thus far. Porter is indeed the most influential author, but he is clearly identified with the market-driven view of strategy, which believes that the main drivers for strategic choice are external to the organisation. There is an alternative view, the resource-based view, which believes the main drivers for strategic choice are internal ones, such as an organisation's core competences (Grant, 1991). Indeed, Grant himself (Grant, 1997) has gone on to write about knowledge and its management.

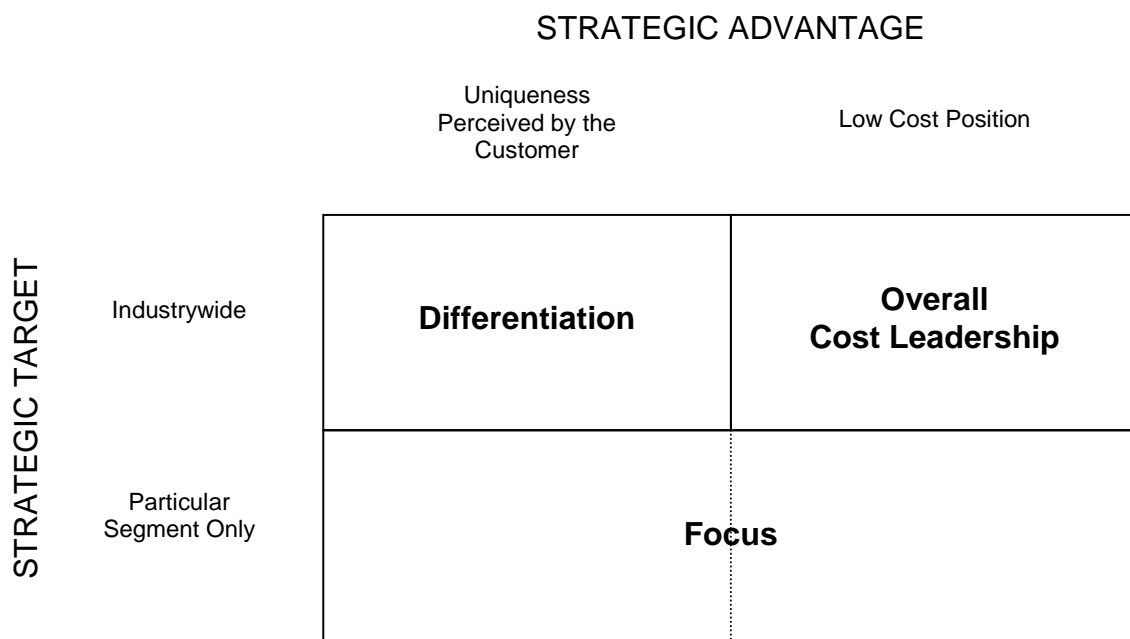


Figure 1: Generic strategies (after Porter, 1980, p.39)

As well as deciding competitive strategy, implementation is also crucial, and not always easy, even just translating the high level competitive strategy into operating strategy. In manufacturing, for example, where Porter's work had its base, what is termed manufacturing strategy has a complex relationship with competitive strategy (usually termed corporate strategy in the manufacturing literature). For example, Hayes and Wheelwright (1984) proposed four stages of progression in manufacturing strategy, from internally neutral to externally supportive, during which the relationship between manufacturing strategy and corporate strategy changes.

The final complicating factor that we consider here is whether the scope for competition has actually changed since Porter defined his generic strategies. The principal new element in the debate here is the idea of mass customisation, a term introduced by Davis (1987) to describe the provision of products and services to a wide market that are nevertheless customised to satisfy a specific customer need. This approach cannot easily be pigeon-holed as either offering a unique product/service or providing a standard product at lowest-cost. Lampel & Mintzberg (1996) define three types of mass customisation, as intermediate points on a scale ending with a fully customised unique product. They are :

1. Distribution customisation – customers require customised product packaging, delivery schedule or location. Customisation occurs after production;
2. Assembly customisation – Pre-defined options can be configured after fabrication and include colour, easily adapted technical modifications, size, etc. Modular components enable firms to customise during the assembly stage;
3. Fabrication customisation – firms tailor a product based upon a pre-defined design. Flexible technology and information systems facilitate customisation at the fabrication or production stage;

Their descriptions were focussed on products only, but the same principles clearly apply to services. The difference between the types is the point at which the customer influences the process (distribution, assembly or manufacture); for full customisation it is at the design stage. Figure 2 shows these three intermediate points together with the extremes of full customisation and standardisation.

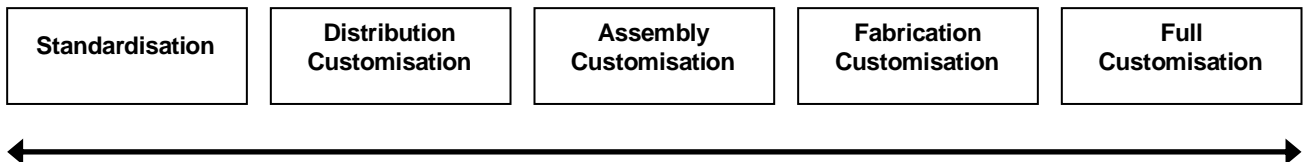


Figure 2: The range of approaches from standardisation to full customisation

3. Knowledge management strategy

In addition to the seminal Hansen *et al* paper, 1999 also saw the appearance of a paper by Zack that was almost as widely cited (Zack, 1999a), as well as a contributed volume, also edited by Zack, that attempted to set out what was known about KM strategy (Zack, 1999b). Both Zack and the contributors to the book he edited took the resource-based view of the organisation.

Since 1999, there have been relatively few attempts to advance the theory of KM strategy. Many articles appear to take it for granted that the personalisation and codification dichotomy is the last word on the subject. Perhaps the most significant contribution has been that of Earl (Earl, 2001). Earl identified seven different strategies, or "schools," for KM, concentrating on the nature of the IT support required. They are: systems, cartographic, engineering/process, commercial, organisational, spatial, and strategic.

The correspondence between Earl's schools and the Hansen *et al* strategies is clear for some, but not for all. Earl states that the systems school is based on codification and contrasts it with the cartographic school based on personalisation. The organisational school is defined in terms of communities, networks and people, and so clearly falls under personalisation also. The spatial school similarly emphasises face to face contact. Indeed, Earl gives this the alternative label of the social

school; clearly personalisation again. For the strategic school, Earl's description is that the organisation decides to compete on knowledge. This surely implies invention in the organisation and thus a personalisation approach. This is further supported by Earl's use of Buckman Labs, well-known for using a personalisation strategy (Pan and Scarbrough, 1999), as an example in this category. Earl's first exemplar of the process school is Hewlett-Packard, which was cited by Hansen *et al* as an example of personalisation, but the information technology support is described in terms of shared databases, sounding more like codification. On balance, given that it appears in Earl's examples to be the user's decision to consult a database, this is more personalisation than codification. The hardest school to assign is the commercial school, which seems to be even more "in the middle". Its emphasis on making the most of intellectual assets ought to imply some element of invention, but Earl cites the two critical success factors for this school as developing a specialised team or function and managing intellectual assets as a routinized process. The latter in particular sounds more like codification.

As may be seen from Figure 3, although the Behavioural schools clearly imply a personalisation strategy, there is no clear progression from one side of the diagram to the other.

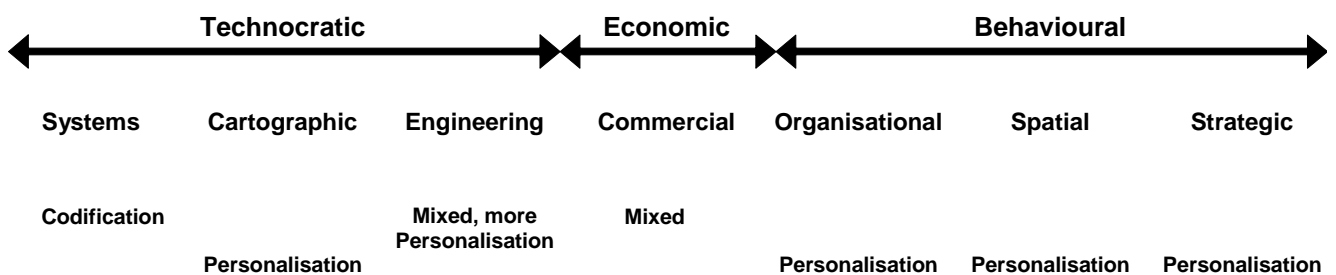


Figure 3: Earl's seven schools related to personalisation and codification

The use of the plural (strategies) by Earl raises the question of the level, or the unit of analysis, at which KM strategy is considered. It is clear from his article that Earl's seven schools of KM strategy appear to be capable of applying both at the level of the whole organisation and at a rather lower level. Some of the examples he gives are at lower levels, such as maintenance expertise distributed on CD-ROM in Airbus Industries, while others apply to the whole organisation, such as the knowledge communities in BP Amoco and Shell.

Returning again to Hansen *et al*, they looked initially at large management consultancies (their own words) and treated the whole business as the unit of analysis. They then went on to extend their study to two other sectors: health care providers and manufacturers of computers, using just one pair of examples from each (Memorial Sloan-Kettering Hospital and Hewlett-Packard for personalisation, Access Health and Dell for codification). Again the unit of analysis was the whole business. Later in the article they did recognise the possibility of strategic business units pursuing separate KM strategies, where the business units are as separate as finance and car manufacture in General Motors (their example), but suggested that if the business units are tightly integrated then the organisation should stick to a single KM strategy. Lower levels of the organisation are never explicitly mentioned, but presumably are part of the explanation as to why all organisations were found to use both personalisation and codification strategies.

Overall, the vast majority of authors in the literature appear content with the personalisation and codification dichotomy. However, although it is implicit in the literature that a KM strategy can apply at different levels in an organisation, there seems to be no explicit attempt to incorporate this into the theory.

We now go on to consider how the literature on KM strategy links to the market-driven view of competitive strategy.

4. Knowledge management strategy and organisational strategy

Hansen *et al* (1999) identified the two main KM strategies with corresponding competitive strategies, without explicitly referring to any of the strategy literature in their article. Their two competitive strategies, broadly termed standardisation and customisation, do not correspond exactly to those in Porter's theories, although clearly adopting a market-driven view. Customisation fits well enough with Porter's differentiation, but standardisation does not entirely match Porter's cost leadership: Dell computers, for example, have never been the cheapest. Hansen *et al* based their analysis not just on the management consulting sector, but that part of the sector dealing with high-level (strategic and/or organisation-wide) consultancy. No criticism of this is intended. Given that management consultancies of this kind were amongst the earliest adopters of KM as an explicit activity, it was an obvious sector to choose in order to find data on KM strategy. However, strategic management consultancy is not a sector in which cost leadership appears to be a tenable market position.

The appropriateness of a KM strategy of personalisation for a competitive strategy of differentiation does not seem to be problematic. Buckman Labs, mentioned earlier as one of the most widely cited examples of successful KM, takes a personalisation approach to KM, and this is consistent with its competitive strategy that is based on customised solutions (and thus differentiation).

Beyond differentiation, the picture is mixed. Shih and Chiang (2005) studied 147 large Taiwanese companies, and confirmed that personalisation went with a differentiation strategy and codification with a cost leadership strategy. Massingham (2004) assumes that cost leadership and differentiation are the only competitive strategies possible. Smith (2004) and Michailova and Nielsen (2006) both give three categories, two of which fit the Hansen *et al* model well. We return to the third in 5.2.

Thus there is widespread support for the correspondence of personalisation with full customisation (and hence differentiation), and some support for the correspondence of codification with standardisation. However, as we have already seen in Figure 2, there are intermediate positions of mass customisation between full customisation and standardisation, and this is where the model based on a simple dichotomy becomes less clear-cut.

One standardisation example that Hansen *et al* (1999) gave was Dell Computer's PC business. This is clearly mass (assembly) customisation. Even their definition of standardisation in strategic management consulting refers to reuse of components, thus implying at least assembly, if not fabrication customisation. Access Health, however, was definitely pursuing a competitive strategy based on standardisation (or at most delivery customisation) and cost leadership. This lack of acknowledgement of mass customisation makes mapping their terms onto Porter's generic strategies even more complex.

Squire *et al.* (2004) treat mass customisation as the fragmentation of the market into multiple niches, so that fundamental competitive strategy again reduces to the choice between differentiation and cost leadership. Taking this view to its logical conclusion, this must mean competing mainly, if not exclusively, by differentiation – since if it were simply a question of cost, there would be no need for customisation in the first place.

In the next section we move on from this somewhat confusing picture to discuss a wider range of factors, and look at potential ways forward.

5. Factors affecting choice of knowledge management strategy

5.1 Competitive strategy

Although we have expressed some misgivings as to whether the picture is as clear-cut as Hansen *et al* presented it, there can be no doubt that corporate competitive strategy must be related to KM strategy. The KM literature continues to confirm this. For example, Snyman and Kruger (2004) comment that an appropriate fit between the organisation's mission and objectives and its KM strategy should be found.

One aspect that does need further thought is what standardisation as a competitive strategy really means. As we have seen, this is not a term used in the strategy literature. Arguably, none of Hansen

et al's examples actually deal with true standardisation. Standardised operations such as commodity production or fast food retailing rarely feature in the KM literature. One scenario might be called "beyond codification". Perhaps organisations which truly compete on cost leadership and standardisation do not have the same KM problems as others. Hence their knowledge is more likely to be built into the very procedures by which the organisation operates than specifically into databases or electronic document systems (the term originally used by Hansen *et al*). This resembles Earl's engineering or process school, which we had trouble classifying in Hansen *et al* terms earlier. We have recently worked with two manufacturing organisations where building knowledge into the organisation's operating procedures was a key element of the KM strategy (Shaw and Edwards, 2006). In one of the two cases, the only information technology used for this was word processing.

A second aspect that needs to be taken on board is that the competitive strategy may need to be questioned. Firestone and McElroy (2003) argue that most KM methods are biased to an assumed purpose of supporting the organisation's strategy, so that they treat the existing competitive strategy as given. They coined the phrase "the strategy exception error" for this, making the point that the strategy may need to change. Business strategy and KM strategy, they say, should therefore be developed together. A useful example here is provided by Massingham (2004), who describes a company changing competitive strategy. It is an Australian firm in the building materials sector, which traditionally has been a commodity market. Such a market implies that cost leadership is the basis of competition more or less by definition. However, the company is now changing to a differentiation strategy based on the service that the company can provide. The KM strategy is developed as part of this change.

5.2 More than two strategies?

The KM literature also yields some examples which no longer appear to fit easily into the personalisation-codification dichotomy. For example, Smith's third example (Smith, 2004) is Mellon Financial Corporation, which appears from his description to be successfully pursuing a mixed KM strategy, contrary to Hansen *et al*'s recommendation. Smith's paper does not discuss Mellon Financial Corporation's competitive strategy, but the organisation's slogan (from www.mellon.com) is "the difference is measurable". Interestingly, this could be interpreted as fitting either a differentiation strategy or a cost leadership one! Mellon Financial Corporation may have found a tenable "mixed" position for both competitive and KM strategy.

Michailova and Nielsen also argue cases that do not fit the simple model well. Their middle category (Michailova and Nielsen, 2006) is the "MNC as knowledge network". Its definition mentions innovation, but the emphasis of the strategic approach is stated as "integration of dispersed resources". This does not map easily onto either Hansen *et al*'s terminology or Porter's generic strategies. Michailova and Nielsen bring a new perspective to examples such as BP and Royal Dutch Shell, as a result of which the existing categories may need to be modified.

5.2.1 Multiple levels

A further aspect that may need to be added within this discussion is that of organisational level. The standard description of levels found in the literature on organisational behaviour identifies three levels: individual, group or team and organisation (Robbins, 2003). These are the levels used by Nonaka and Takeuchi (1995) in their spiral model. We have already seen that the existing theory allows for strategic business units to have different fundamental KM strategies, and for some (20%) use of the "other" strategy, which would presumably be for certain work groups or teams. However, the precise way in which this might affect organisations' KM and organisational learning needs further examination. For example, Sanchez (2006) identifies five levels of organisational learning, including individual, group and organisation, plus individual/group and group/organisation.

5.3 Organisational culture

Another dimension to add in considering KM strategy is organisational culture. Hansen *et al* do not explicitly mention culture at all, but they do allude to it in their article. They use the terms "inventors" and "implementers" to describe the sort of people who work in organisations that pursue customising

and standardising approaches respectively. Their point “having both inventors and implementers rubbing elbows can be deadly” clearly refers to the cultural aspects.

McDermott and O’Dell (2001) pointed out that successful companies in knowledge sharing did not change their culture to match their KM initiatives. They adapted their approach to KM to fit their culture. The example of Intel given in Neef (2005) also stresses the importance of cultural alignment. Intel’s personalisation strategy works because of the organisation’s culture, exemplified by its “Right To Know” principle. Earl (2001) also makes this point with reference to what he termed the organisational school of KM. Earl advises that this can only be followed in an organisation that possesses the right culture, i.e. one that is predisposed to networking and sociability.

5.4 Leadership

Leadership continues to raise issues relating to the implementation of KM strategy. The importance of knowledge champions is widely accepted (Skyrme and Amidon, 1997; Davenport *et al.*, 1998), but more thought needs to be given to their precise role in the strategy and its implementation. Smith (2005) uses the work of Rogers on the diffusion of innovation to discuss the importance of opinion leaders being early adopters of KM. (Rogers, 1995).

By contrast, Laycock points out the existence of stealth or covert KM, especially in the public sector (Laycock, 2005). This is supported by a recent book (Sinclair, 2006). The notion of competitive strategy does not always fit well with public sector activity, but the difficult questions that it raises bear proper consideration. For example, in the UK press it is not uncommon for the National Health Service to be criticised for operating a “postcode lottery” when the service provided appears to be different in different places (presumably advocating standardisation), and (simultaneously!) for failing to respond to local needs (presumably advocating customisation).

6. Conclusions

In conclusion, the original concepts of personalisation and codification are still fundamental knowledge management strategies. However, careful consideration needs to be given to extending this theory in several ways:

- The links to competitive strategy need to be explored more carefully, especially as few organisations in the KM literature really have completely standardised products or services. The precise meaning of mass customisation is more complex than the KM literature assumes. A clearer split between knowledge about internal processes and knowledge about the external environment, as is seen in the manufacturing strategy literature, may help in this.
- There may be a third KM strategy that is neither personalisation nor codification, but nor is it “stuck in the middle”. Here the knowledge drives the competitive strategy rather than the other way round.
- Whatever the principal KM strategy, the theory needs to give more advice regarding when a different strategy should be used. This will require explicit consideration of the levels in the organisation, and perhaps other aspects of the organisational structure as well.
- When thinking about KM strategy, it should not be assumed either that the existing competitive strategy is appropriate, or that the competitive strategy fits the organisation’s culture. If the organisation’s strategy does not fit its culture, this is not something that any KM initiative can address by itself.
- The precise role of leaders needs to be better incorporated with the rest of the theory. It is easy to see how a leader might demonstrate a personalisation strategy by example, but much harder for a codification strategy (by definition, there is only one chief executive).

An optimistic prognosis, then, is that KM researchers have much more to contribute to helping people to devise KM strategies for organisations.

A slightly more negative one is that some types of organisation, those that compete solely on least cost and standardisation, have very little need for KM, whilst in others, where the competitive strategy and/or the culture are not appropriate for what is required, any KM initiative is probably doomed to failure.

We are currently in the process of extending our previous work with a sample of UK organisations that are "average" at KM, to an analysis of KM taking into account competitive strategy. We hope that this will shed some light about the above four points.

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