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The IT Consulting Process Through a Knowledge Management Lens

Guy Gable
Queensland University of Technology

Thomas Davenport
Babson College

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Guy Gable
Queensland University of Technology
g.gable@qut.edu.au

Thomas Davenport
Babson College
tdavenport@babson.edu

Marianne Broadbent
Melbourne Business School
m.broadbent@mbs.edu

Greg Timbrell
Queensland University of Technology
g.timbrell@qut.edu.au

Abstract

The IT consulting process can be usefully examined through a knowledge management lens from multiple perspectives and levels. Knowledge transfer is crucial for successful consultant engagement and depends upon the conditions of client understanding and client involvement which need to be considered by both provider and purchaser of the service. The example of Enterprise Systems services shows the need for consultants to leverage knowledge for comparative advantage based in knowledge management strategy. Clients require a lifecycle-wide knowledge sourcing strategy, which is often effectively mediated by consultants. The study aims to combine these multiple levels and perspectives through integrative theory.

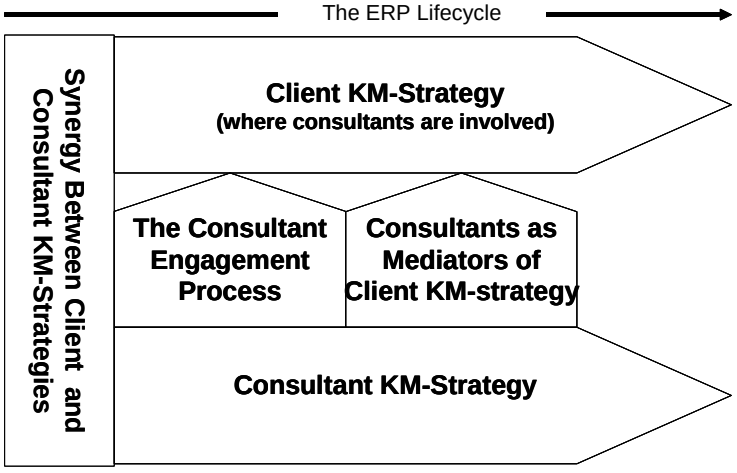
Keywords: Consultant Engagement, Enterprise Systems, Knowledge Management.

1. Introduction

1.1 Study Aims

The knowledge intensity of management consulting and IT professional services suggests potential from thematising these activities from a knowledge management perspective. Effective knowledge transfer is crucial for successful consultant engagement and depends upon the conditions of client understanding and client involvement, which need to be carefully considered by both the provider and the purchaser of the service. The example of Enterprise Systems (referred to as ES herein – often referred to as ERP in a narrower sense) services shows the need for consultants to leverage knowledge for competitive advantage based in knowledge management strategy. Clients in turn require a lifecycle-wide ES knowledge sourcing strategy, which is often effectively mediated by consultants (Timbrell & Gable, 2002).

Figure 1 – Valuable Knowledge Management Perspectives on the Consulting Process



The proposed study seeks to apply knowledge management concepts to identify, develop and test theory to explain the IT consulting process in an ES context. This study focuses on a particular kind of Professional Service Firm (PSF) - the IT

consulting firm. Kennelly, Gable and Smyth (2003) define management consulting as 'the attempt by an individual or firm, by means of collaborative effort between client mangers and consultants, to recognise and derive advantage from new opportunities in conjunction with transferring and improving knowledge in order to achieve the client organisation's goals.' We focus on the ES context to anchor the work empirically, for scope, and to yield nearer-term application of findings and related generation of benefits.

Figure 1 depicts several conceptual levels on which Knowledge-Management can impact both the client and consultant. The parallel horizontal arrows reflect the potentially symbiotic relationship between knowledge strategies of clients and consultants. Ultimately the study aims to combine all views through integrative theory.

This paper discusses a variety of elements important to the IT consulting process that will be integrated during the course of the Macro and Micro studies including: the synergy between client and consultant KM-strategies; Maister's (1997) spectrum of consulting practices; consultants engagement processes and success factors (Gable, 1992), a multidimensional model of consultant engagement success (Gable and Chin, 2001); knowledge strategy at the centre of PSF practice area strategy (Morris and Empson, 1998); major classes of PSF knowledge; and, vendor knowledge-strategy.

1.2 Background

The consulting sector is amongst the most knowledge intensive. Not surprisingly, several of these firms already engage in active knowledge management strategy. For some large consulting companies, ES expertise and its management represent their largest ever investment.

Large consulting firms such as Ernst & Young (Davenport, 1997) go to great lengths and expense to externalise ES knowledge. They have sought competitive advantage through leveraging their knowledge by storing it in 'repositories' also called 'reservoirs' that can be drawn from in future. By storing knowledge, consulting firms can leverage their limited people resources, expedite projects, maintain consistency in services globally and reduce the negative effects of localised 'knowledge drain.' Four key means by which consultants have sought to externally store knowledge relating to ES are: software templates, methodologies, configurable electronic knowledge repositories, and education and training materials. The personal knowledge reservoirs of the consulting staff are important stores of uncaptured and uncodified ES knowledge that contribute directly to the consulting output and act as a medium for the externally stored organisational repositories.

Maister (1997) describes a spectrum of three consulting practices: (1) Expertise - non-routine projects of extreme complexity at the forefront of professional and technical knowledge, requiring highly skilled consultants to create new knowledge-based solutions; (2) Experience - involving a lesser degree of innovation and creativity, the general nature of these projects is familiar to consultants who have worked on past similar projects; and (3) Efficiency (Procedural) - well-recognised and familiar projects, accomplished in an almost programmatic way, and offering the greatest opportunity for leveraging of junior staff.

Frontier assignments handled by Expertise practices can quickly move down the spectrum to become Efficiency / Procedural types as the assignment challenge and solution become more familiar to consultants generally. As projects, and knowledge about their context, solutions and methods become codified, less protected and distributed more evenly across the consulting sector, there will be a reduction of the Ricardian or monopoly rents earned from such knowledge (Liebeskind, 1996). In seeking to maximise economic rents from their

knowledge resource, consulting management must balance their knowledge-strategy between innovation and 'isolating mechanisms' that serve to protect innovations from expropriation or imitation (see Kogut and Zander, 1992). This may create friction between the knowledge strategies of the consultant and client where the client insists on imitability and transparency of consulting related process and content.

ES implementation partners position themselves towards the experience/efficiency end of Maister's spectrum. ES experience - the knowledge of and practised skill in ES implementations (and re-implementations / upgrades) held tacitly by consultants - is in short supply. Thus, two important knowledge services provided by consulting firms are technical product knowledge ('experience' of the chosen ES) and product related implementation procedural knowledge ('efficient' methodologies) i.e. implementation project management. While it is these experience and efficiency type practices that are principally involved in ES implementations, 'expert' practices sometimes play a role, such as addressing previously un-faced technical challenges or applying ES technology in new circumstances or in new competitive ways. Change management within the client organisation resulting from the ES is another 'experience' practice.

Efficiency practices have traditionally based their competitive advantage or differentiation on proprietary implementation methodologies. Clients of these consulting firms realise they must pay a significant premium for these firms' knowledge-base, as it is difficult and costly to establish and maintain (clients would not get the same value from capturing and codifying this ES knowledge themselves because in many cases it would be used only once). New 'efficiency' firms entering the ES services market, may seek to convince prospective clients that they are better value and less expensive, and that maximum efficiency in approach will contain costs. There will be a tendency for these firms to convince the market that the process of implementation is more 'procedural' than perhaps it is. This can result in inadequate attention to issues of fit, change management, organisational culture, unique national cultural factors, etc.

Alternatively, there may occur legitimate 'practice creep', requiring that the consulting firm reconsider their business plan and practice foci. In example, the widespread availability of ASAP (now ValueSAP), SAP's (SAP is the largest of the ES vendors) comprehensive and detailed, rapid implementation methodology, has accelerated and extended the commoditization of procedural ES implementation knowledge. To some extent as a consequence, several of the major consulting firms have moved away from SAP-specific practices and have reorganised around industries, thereby: (1) de-emphasizing procedural knowledge; (2) re-emphasizing industry knowledge, and essentially (3) pulling back to the left of the Maister continuum (increased emphasis on expertise and experience) to better differentiate themselves from smaller consultants with equal access to ValueSAP.

Clients pay not only for access to codified knowledge but also for access to the knowledge held by the consultant staff. ES skills and experience are valuable and scarce and thus can be economically leveraged across multiple implementations and sites. Consulting firms can attract good people with ES knowledge away from client firms by offering them more money and more diverse or challenging experiences that makes them increasingly marketable. New consulting staff with scarce ES knowledge can command higher fees from clients and higher salaries from the consulting firm. ES training of new consulting recruits to further develop their ES knowledge stores can be expensive. This valuable and scarce ES knowledge can be leveraged across multiple implementations. It can be uneconomic for a client to retain this knowledge in-house to support a single ES implementation.

In 1998, Gable, Scott and Davenport proposed that clients implementing ES require a "lifecycle-wide ES knowledge sourcing strategy". Three related problems of that time exacerbated this need: (1) rapidly changing technology and organizational philosophy demanded quite new ES-related roles; (2) there existed a serious dearth of ES expertise internationally; and (3) for SAP and its implementation partners, the market size for ES was constrained by the knowledge costs of implementation (consultants, staff, training and education). Though the drivers have changed somewhat, the need has not lessened. The base of installed ES is substantial. ES consulting activities continue to be knowledge intensive. There is thus strong motivation for better leveraging ES implementation knowledge and making this knowledge available to those involved in the ongoing evolution of the ES.

Consultants serve as important mediators of client knowledge sourcing strategy. A consulting firm's ability to help a client implement an ES stems not only from their technical expertise in the ES system but also from their ability to 'mediate' the client's knowledge sourcing strategy. The consulting team 'sources' much necessary ES-related knowledge from their knowledge base of software templates, methodologies, configurable electronic knowledge repositories, and education & training materials, and combine these codified knowledge-stores with their personal experience reserves to help define, evolve and implement the client's knowledge sourcing strategy.

Consulting firms can also be mediators of clients' ES knowledge creation and discovery. Consulting firms use techniques such as guided learning, formal training and other knowledge creation activities to direct clients to the necessary knowledge required for a successful implementation. This guidance saves the client considerable time and effort in knowledge search costs. Perhaps the consultants' greatest contribution to implementations and re-implementations is their ability to mediate and guide the effective combination of internal client knowledge (eg. business rules and processes, the requested 'future state') with the consultants' and vendor's knowledge of ES configuration possibilities (technical knowledge / *experience* practise) and reify this combination using *efficient* methodological practices.

A major role of consultants is to aid clients in externalising their existing uncodified organisational knowledge. This has been done through such traditional means as interviews, reports, documentation and meetings, as well as through more contemporary client or consultant knowledge-bases (e.g. Q&A database in ValueSAP). Consultants may be engaged to assist with externalising client knowledge for a variety of reasons. Staff of the firm may be reluctant to yield their 'private' knowledge or clients may not have the resources, nor know-how to go about identifying and capturing the knowledge. Alternatively, capture and codification of knowledge may be a by-product of the engagement, with the client not appreciating the value of explication until delivery.

> "*Thus the anecdotal quip that 'a consultant is someone who borrows your watch to tell you the time,' may reflect the legitimate and valuable role of the consultant as knowledge mediator. It has been suggested that a truly good consultant is one who helps clients to learn or profit from their own experience. In this sense the consultant's role is to some extent to debrief, externalise, capture, codify and manage client knowledge for client reuse" (Gable 2004).*

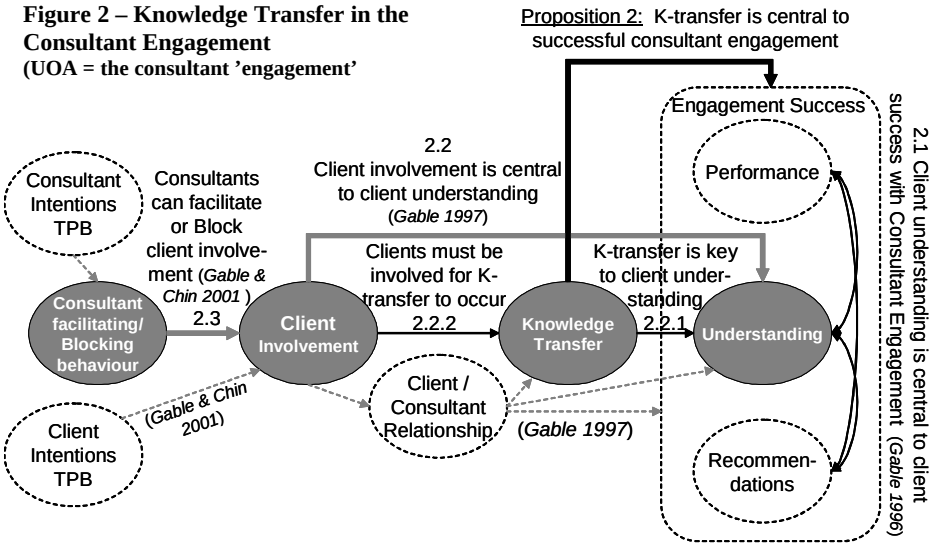
2. Approach

2.1 Theoretical Framework

Sample study propositions are grouped in this paper around a Micro-study and a Macro-study, the first of which has the consultant 'engagement' as the unit of analysis (UOA), the second having the consulting firm and its KNOWLEDGE-MANAGEMENT-strategy as the UOA.

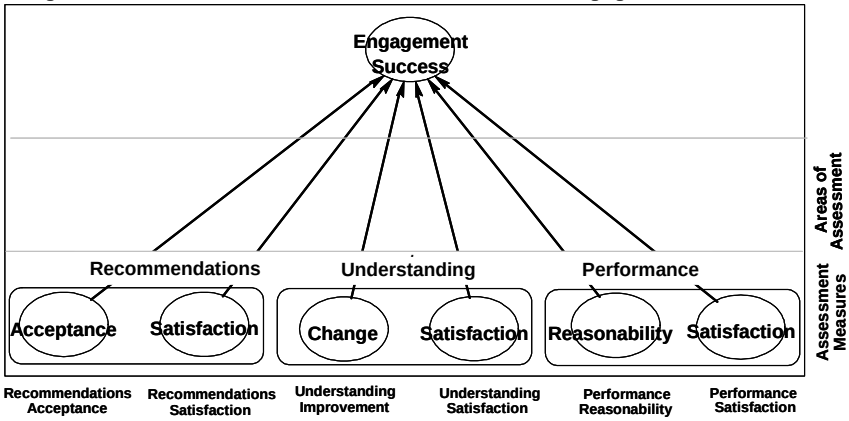
The Micro-Study: aims primarily to reposition and extend past work into the more contemporary knowledge-management realm, through re-conceptualisation and analysis of data from a 1991 study (Gable 1991) titled 'Consultants Engagement Success Factors' (CESF). Figure 2 depicts the opening propositions and related corollaries. Previously tested paths of the model are cited. The operationalisation and validation of Engagement Success is described in detail in (Gable 1996), who observes that, "though the primary motivation for their derivation in the parent study was to yield a valid and reliable overall measure of Success to be employed in prediction and causal model testing (e.g. Gable 1997), the six separate dimensions of success [see Figure 3] offer significant potential for further research." The leftmost branch of the model in Figure 2 (DV=Client Involvement) is based in Ajzen and Madden's (1986) Theory of Planned Behaviour (TPB) and reported in detail in (Gable pending, Gable & Chin 2001). It is noted that none of the other branches of the model in Figure 2 have been adequately explored.

Figure 2 – Knowledge Transfer in the Consultant Engagement
(UOA = the consultant 'engagement'



The existing database includes over 400 variables pertaining to approximately 150 computer system selection projects, half of which involved then Big8 consultants and half local or regional consultants. Client and consultant records are matched by selection project. Parts of this data have been extensively validated and found to be robust and reliable (e.g. Gable 1996, 1997). Much of this data has never been adequately analysed.

Figure 3 – Multidimensional Model of Consultant Engagement Success



Proposition: Effective knowledge transfer is central to successful consultant engagement. Corollary: Client understanding is central to client success with consultant engagement.

In the late 1990's, many organisations, having implemented an Enterprise System (e.g. in the face of Y2K) sighed in relief, only to discover a short while later that their world had changed and the knowledge necessary to evolve their ES had gone with the consultants. This may suggest that necessary client understanding and client involvement were inadequate. Gable (1996) demonstrates that client understanding is a distinct and highly influential dimension of client success with consultant engagements. His multidimensional model of client success when engaging external consultants (Figure 3) includes three main areas of success, the central of which is client 'understanding' (the other two being [consultant] 'performance' and 'recommendations'). Though Figure 2 indicates a path only to overall engagement success, it is expected that much can be learned from analysis of the individual assessment areas and dimensions.

Corollary: Client involvement is central to client understanding: Gable (1997) demonstrates that Client involvement is a necessary antecedent of 'client understanding' and successful consultant engagement. Further, (i) Effective knowledge transfer is key to client understanding, and (ii) clients must be involved for effective knowledge transfer to occur. Lack of appropriate client involvement may mean much important un-codified knowledge is not transferred, or the client is ill placed to effectively utilize codified knowledge captured on the project or left behind by the consultant.

Corollary: Consultants can facilitate or block client involvement: The influence of the consultant on client involvement, beyond influences apparent to the client, is substantial (Gable and Chin 2001). Main mechanisms of client involvement pertain primarily to knowledge transfers.

We recognise that clients to not always seek to 'understand' the knowledge brought to bear by consultants. Mowrey et al (1996) noted from their study of inter-firm alliances that firms often display 'divergent development' ie. declining technological overlap, suggesting that some alliances are vehicles for accessing, rather than acquiring capabilities. A similar distinction is drawn between differing knowledge strategies of client firms wishing either to access or to acquire capabilities, skills and knowledge from consulting engagements. Further, the work of Cohen and Levinthal (1992) on absorptive capacity and its importance in knowledge transfer is a key concept for client-consultant knowledge-strategy. If the two parties either recognise or agree that the client does not have the absorptive capacity to adopt an 'acquiring knowledge-strategy' (active transfer) then they may agree to move to an 'accessing knowledge-strategy' (e.g. Doctor-Patient or Lawyer-Client type of relationship). In an 'accessing knowledge-strategy' both parties accept that the service is produced and consumed with minimal knowledge transfer.

Finally, because consulting engagements tend to be extended encounters, knowledge involved has both what Mills et al (1983) call process and product dimensions. Applying even relatively procedural, 'packaged' services thus tends to require development of a 'relationship' with the client and some appreciation of client idiosyncrasies. Grey (1994) notes that many consultants spend much of their working life on client premises. Where the client is actively involved in an engagement, standardisation of processes is more complicated, and task uncertainty higher, requiring professionals to "create their roles to some extent in the course of a client assignment" (Morris & Empson 1998:614). We note that this 'process' dimension corresponds closely with Gable's (1996) 'performance' area of assessment, the first dimension to fall out in factor analysis, explaining almost half the variance in his consultant engagement success measurement model. While some of this

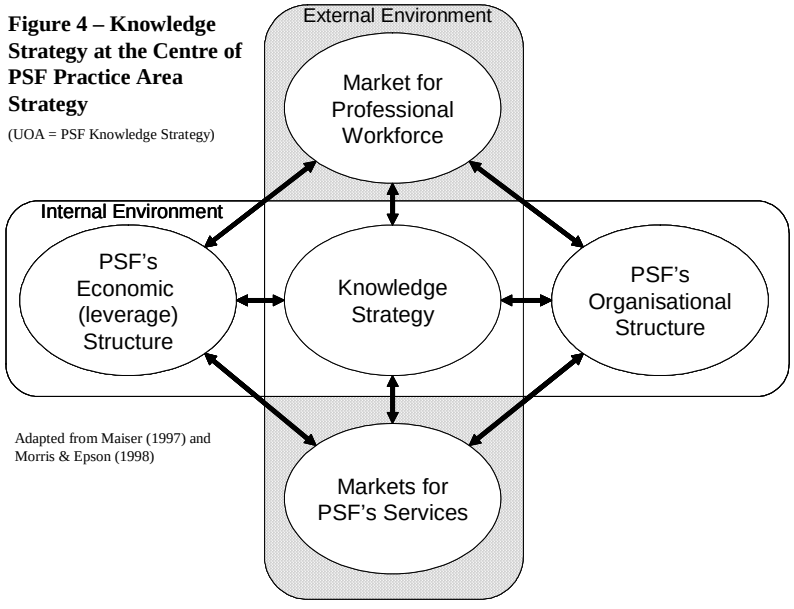
'process' knowledge on 'how to relate to the client' and 'client idiosyncrasies' can be codified (if this is a strategy of the firm), most is tacit and difficult to capture. 'Product' knowledge is by its nature codifiable. Thus again we see value in returning to Gable's (1996) data to address the following proposition.

Proposition: Process knowledge is relatively more important than product knowledge, to overall client success with professional engagements.

It is suggested that, lacking a direct measure of the goodness of process knowledge on any given engagement, the best surrogate is an assessment of the client/consultant relationship. Note that the 'client/consultant relationship' construct, was found in prior work by Gable (1997), to be the strongest predictor/explanator of 'consultant engagement success'. Gable (1997) argues that Client Involvement is beneficial, primarily to the extent that it results in an improved relationship. The full impact of Relations on all dimensions of engagement success has yet to be explored.

The Macro-Study. Maister (1997), in a functionalist manner, argues that the PSF must service clients effectively and profitably using staff of appropriate quality, by generating demand for its services in the 'client market' and recruiting and providing incentives to acquire and retain professionals from the 'labour market'. He argues compellingly that other factors of production are less important and do not strongly influence the organisational structure of the PSF or its leverage strategy. Both Maister (1997) and Morris and Empson (1998) emphasize that the 'client market' and 'labour market' are linked by the PSF and ultimately by the 'internal organisation of the [PSF] knowledge base on which the firm trades'. Figure 4 shows knowledge-strategy mediating the PSF's position between the two markets in the 'external environment', and substantively defining the PSF's leverage and organisational structures in their 'internal environment'. In other words, it is proposed to regard the links of the PSF to its external environment in the form of recruitment and training, and of product and service development and delivery as indicators of the way knowledge is managed in the PSF. Figure 4 and this discussion suggest the following propositions.

Figure 4 – Knowledge Strategy at the Centre of PSF Practice Area Strategy
(UOA = PSF Knowledge Strategy)



Adapted from Maiser (1997) and Morris & Epson (1998)

Proposition: Knowledge management is central to the concept of leverage, which is the principal source of profits for many consulting practice areas.

Proposition: Leverage involves the progressive centralisation & standardisation of collective expertise.

A variety of knowledge management strategies co-exist within the professional services sector. The choice of knowledge management strategy will be influenced by the nature of the knowledge base that underlies the professional service and how the firm is positioned in its particular sector. Practices with a standard, relatively stable knowledge offerings centre their knowledge strategy on the repository, often computer-based, re-using the knowledge within

over and over. This conventional model of codification and leverage is only one extreme form. Hansen et al (1999) suggest a personalisation strategy as an alternative. Firms that face more unique problems and cannot gain the 'economics of re-use' from a codification strategy may embrace a personalisation strategy, whereby knowledge is shared principally through person-to-person contacts. In these cases, technology is used to locate experts and aid communication and collaboration. Note that codification strategies, involving the appropriation of uncodified knowledge, face the problem that some forms of knowledge may not be susceptible to transfer or storage without deterioration, in which case leverage will be difficult to exploit. Thus, we concur with Morris and Empson (1998), that knowledge management in PSFs is more complex than existing literature suggests, and is hence an area of practice that demands exploration.

Proposition: The PSF must have multiple, separate knowledge-strategies based in the idiosyncrasies of each distinct practice area. Corollary: Strategy-based practices will be less reliant on a codified knowledge-base but more reliant on personalisation strategies. Corollary: Analytically-based practices will be more reliant on a codified knowledge-base.

Proposition: Larger consulting firms having greater resources will seek to increase barriers to entry through increasing practice reliance on expensive technology and knowledge-base development and maintenance, beyond the resources of smaller competitors.

Proposition: To the extent that codification and barriers are possible in combination, the successful firm will command extraordinary profits through leverage.

Proposition: Various forms of knowledge may be used in combination in any given practice area.

Extensive codification presents firms with the opportunity to standardize work tasks as far as possible and delegate these to junior staff as the route to higher leverage; on the other hand, it may be that firms that pursue standardisation of roles and repetitive activities then find they have the scope to codify knowledge. Note that implicit here is the expectation that codification strategy should drive structure rather than the reverse. What happens in practice must be examined.

Proposition: The nature of the knowledge-base will influence the organisational structure of the firm. Corollary: A highly codified knowledge-base and concomitant high leverage will tend to encourage greater organisational structure and layers. Corollary: Minimal codification and high reliance on tacit knowledge will encourage a flat structure.

"The knowledge form adopted by the firm and the extent of codification are not predetermined by the size of the firm […]. While it is recognised that bureaucracy is associated with large size in the PSF, resulting in the formalisation and standardisation of techniques and methodologies (Hall 1968, Montagna 1968), this does not mean that inevitably large-sized firms are the most codified". *Proposition*: Organisations of similar size may have different forms of knowledge strategy.

2.2 Research Design

Micro Study – Approximately 15 years ago, Gable initiated a study of IT Consultants, which represents inter-disciplinary research aimed at better understanding client/consultant relations; the consultant engagement process; the IT consulting industry; factors important to successful IT consulting and management of IT consultants; and factors important to the successful export of IT consulting services. The 'Consultant Engagement Success Factors' (CESF) study analysed 150 software package selection projects involving external consultants. The

proposed study builds on the CESF work, seeking to learn much about ES practice knowledge management in large consulting companies in particular. The CESF study contributes insights into the consulting process; package software and consulting services marketplace dynamics; the package selection process; and the package implementation and maintenance lifecycle. The proposed study offers opportunity to extend and further analyse and integrate data and questions from the parent CESF study.

This Micro-study will re-analyse Gable's CESF database taking a client-centric perspective. Major activities here include: (i) Reviewing all old documentation on the existing data and its collection, (ii) 'cleaning' the data for re-analysis, (iii) reconceptualize study concepts which parallel more recent thought, and iv) re-analyse the data using contemporary structural equation modelling.

Revisiting the existing data entails lower-level attention to possible, multiple dependent variables. Rather than constraining attention to overall engagement success, analyses will address the three separate assessment areas (Performance, Understanding, and Recommendations) and six separate success dimensions (see Figure 3). Further, rather than factor analysis, hierarchical regression and path analysis, data analysis will primarily employ partial least squares (PLS). Gable and Chin (2001) is an example of how revisiting the CESF data with a more contemporary analytic technique can strengthen and reveal new findings and interpretations.

Figure 5 - Major Classes of PSF Knowledge

Locus of Knowledge		**Codified**	**Uncodified**	adapted from (Morris & Empson 1998)
Individual		Expertise / Training (Embrained)	(Embodied) in Experience / Wisdom and Technique	
Collective		Precedent / System Process (Encoded)	(Encultured) Embedded in Routines and Relationships	
		Form of Knowledge		

Macro Study - Alternative sources of study evidence for the planned case studies (and possible survey) include large consulting companies (e.g. Gartner, Accenture, SMS) and smaller consulting companies, the latter possibly through the Institute of Management Consultants. The case studies may suggest value in a subsequent, more closed/quantitative survey. Any combination of case study and survey methods will follow the approach described by Gable (1994), itself based partially in Yin (1994).

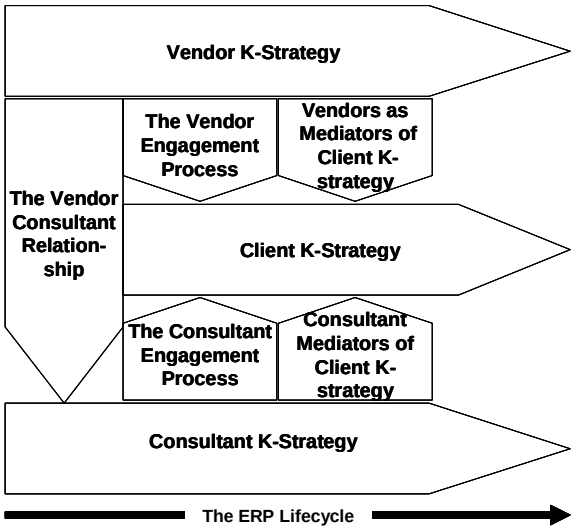
The case studies will be chosen to fit each of the four quadrants in Figure 5, adapted from (Morris & Empson 1998 - who themselves draw upon work of Blackler 1995 and Spender 1996). The four quadrants of Figure 5 represent main classes of knowledge employed within PSFs (there are other classifications). Cases may be drawn from multiple large- or medium-sized firms, or from different practice areas in one or more such PSFs. Emphasis in selection will be on IT Professional Service Firms and Enterprise Systems practice areas, in order to derive advantage from the authors' background in this area and to give the study grounding and focus.

While this proposal focuses on the management of knowledge for consultant and client mutual benefit, technology vendors too of course often play an important role in relation to the implementation and ongoing evolution of IT in client organisations. Also, instances of vendors substantively impacting consultant knowledge-strategies have been reported (e.g. Timbrell and Gable 2002), the reverse too being possible. The study will, in a more exploratory mode, have an eye to these important relationships as well (see Figure 6).

3. Significance and Innovation

The study is significant in that it aims to adapt and test a variant of Maister's (1997) functionalist theory on the centrality of the PSF leverage structure, a highly- and widely-regarded view in practice (never previously tested), and one of few theories on the organisation of PSFs. The study aims, ultimately, to integrate 'engagement process', 'PSF corporate' and 'client' KNOWLEDGE-MANAGEMENT strategies within a single integrative model, and to demonstrate the value of a single PSF corporate knowledge-strategy that integrates individual practice area strategies of the firm.

Figure 6 – Additional K-Management Perspectives



The study is innovative, offering comparatively advantageous access to otherwise difficult to access evidence from large consulting companies and their clients through existing relationships with Accenture and Gartner. The study too has comparatively advantageous access to small- and medium-sized consulting companies and their clients through an existing relationship with the Institute of Management Consultants (IMC). The Micro-study aims to test direct parallels between past constructs (e.g. consultant performance satisfaction, client/consultant relations, client understanding) and more contemporary conceptions of knowledge and knowledge management, drawing upon past and continuing, directly relevant industry experience and insights of all co-authors in the consulting sector and the enterprise systems context.

Finally, the study is practically significant, addressing an important and under-researched sector of the economy – professional service firms - at a time of great need given major disrupts to the industry over the past 3 years. Also, focusing evidence collection on packaged application s/w related IT services is expected to generate more readily practicable findings.

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