

## *Chapter 11*

### **DEVELOPING THE CONCEPT OF SUPPLY STRATEGY IN THE ENGLISH NATIONAL HEALTH SERVICE: LONGITUDINAL EMPIRICAL RESEARCH**

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#### **INTRODUCTION**

This paper gives an account of how the concept of supply strategy has been developed and formulated in an ongoing action research programme that has run since 1995. The paper starts by reviewing literature contributing to an understanding of the concept of supply strategy. This provides the backdrop against which our own evolving conception of supply strategy is reviewed. The method section has two parts; first methodological issues emerging from longitudinal action research are reflected on. Second, Pettigrew's (1987) Context-Content-Process framework for analysing change is introduced as a means of examining how supply strategy has changed. In the subsequent section, the changes in the context, content and process of formulating supply strategy during the course of the longitudinal research are explored. The discussion draws lessons regarding barriers and enablers to supply strategy formulation, including the supply strategy cases which have not developed as anticipated, and what can be learned from those. Finally, the relevance of the research to public procurement practitioners, and the ways in which it makes a novel contribution to the field of purchasing and supply in the public sector are discussed.

The research question this paper seeks to address is: In what ways have the context, content and process of developing supply strategy evolved in this longitudinal empirical action research study?

This question needs to be considered because changing ideas of the role and contribution of public procurement, more recently as a lever for social reform, require a much more sophisticated and complex view of supply. This view includes consideration of multiple stakeholders in complex networks, long timescales, and changing objectives/criteria underpinning decisions, which have all influenced the content, context and process of

developing supply strategy. In the next section we review the literature on the development of the concept of supply strategy.

## LITERATURE REVIEW

### **The Concept of Supply Strategy**

The concept of supply strategy, or the strategic management of supply, has emerged from the coalescence of research in different fields including Purchasing and Supply (P & S) Management, Operations Management (OM), Logistics, Industrial Economics, Strategic Management and Industrial Marketing. Since the 1980s, following the burgeoning of research on business strategy, each area has developed a strategic perspective, embracing external factors beyond firm-based decision-making, examining the units of analysis of inter-organisational relationships, chains and networks of organisations. Some seminal papers that chart this progression are reviewed below.

Supply strategy has been developed from the externalisation of purchasing and operations strategy into inter-organisational supply networks. The advent of purchasing becoming more strategic was exemplified by Kraljic's (Kraljic, 1983) contingency model, which segmented types of purchasing spend, highlighting where a strategic approach is required according to profit impact and supply risk. Kraljic advocated a portfolio approach, with the strategic management of supply contingent on the type of product/service.

Drawing on industrial economics, Williamson (1975) clarified the whole spectrum of different types of relationship between market and hierarchy. The IMP group (Håkansson, 1982, 1987) developed models of dyadic business-to-business relationships, identifying links between actors, resources and activities. The term Supply Chain Management (SCM) was first used in the early 1980s (Oliver & Webber, 1982). SCM initially focused on physical transfer of goods (inbound and outbound) largely within the internal supply chain of the firm. It developed to encompass immediate supply relationships, external supply chains and supply networks, which are reflected in different units of research analysis (Harland, 1996)

In an early review of the strategic purchasing literature (Ellram & Carr, 1994), the central issue is clarified: that to be regarded as strategic, P&S must be involved as a key decision maker, orientated to support overall corporate objectives. The dominant factor appears to be the recognition of supplier relationships as critical to corporate success. To become strategic,

purchasing must develop from a perception as a passive, reactive function, to an integrative, strategic one (Cousins & Marshall, 2000).

Whilst supply strategy research in the past has tended to focus on manufacturing in the private sector in cases such as Toyota (Womack, Jones, & Roos, 1990) and Nike (Lorenzoni & Baden-Fuller, 1993), the need for service sector research has emerged (Brown, Fisk, & Bitner, 1994; Johnston, 1999), reflecting the shift towards a service economy in Western countries (Axelsson & Wynstra, 2002). Public sector research has also increased. Whereas commercial firms have discretion and flexibility in sourcing, significant constraints are placed on those making contract award decisions in the public sector, to provide transparency, demonstrate rational and fair decisions and ensure propriety (New, Green, & Morton, 2002). Evaluating the procurement function's performance is more difficult in the public sector, reflecting the more complex stakeholder context (Callender & Matthews, 2002; Murray, 1999).

A sea change in purchasing and supply research is using public procurement as a lever for government reform. For example, policy such as social and economic inclusion of minority groups may be supported through purchasing policy that encourages choosing suppliers that are minority-owned SMEs (Knight, Caldwell, Harland, & Telgen, 2004).

### **Evolving...**

Elsewhere, several key developments have been noted in the purchasing and supply and operations management field (Harland et al., In review). These include an expansion from manufacturing-oriented research into services, a movement from a largely private sector focus into the public sector, an increasing emphasis on strategic and policy-oriented issues, and consideration of larger system levels of supply, such as sectors and nations.

Similarly, throughout our research programme, the way we have framed and conceptualized supply strategy has evolved. This is illustrated in Table 1.

Several trends are notable in the conceptual evolution of our research, which reflect those in the field of purchasing and supply. These include moving from dyads to chains and networks (Harland, 1996) and setting supply strategy in its broader public sector context (Harland, Gibbs, & Sutton, 2000). There has also been a move from a focus on operational concerns (e.g. contracting) to a greater focus on supply policy and strategy. Examples include e-commerce (Harland, Sutton, & Knight, 2001),

**TABLE 1**  
**Evolution of Concepts and Framing of Supply Strategy in our Research**

Evolution	Definition
Supply chain and network approach	“Strategic supply management is the design, development, optimisation and management of the internal and external components of the supply system. (It) operates at four levels . . . managing the internal supply chain, relationships, the external supply chain and the total supply network” (Harland & Cooper, 1996, p.2).
Managing supply networks	“The term has been employed in various ways including: (1) The many activities in NHS Supplies (and NHS PASA) aimed at developing a more strategic approach to the management of supply (2) A framework that offers a different ‘way of thinking’” (Centre for Research in Strategic Purchasing and Supply, 1999, p.8).
A holistic view of supply strategy	“The concept of supply strategy integrates various existing bodies of knowledge and concepts, to form a holistic, strategic perspective of management and operations, stretching across inter-organisational boundaries. . . Supply strategy relates to the integration of supply activities within firms, in dyadic relationships, in chains of firms and in inter-organisational networks” (Harland, Lamming, & Cousins, 1999, p. 663).
Network roles	“Supply strategy has been developed from the externalisation of operations strategy into inter-organisational supply networks . . it is therefore important to understand and develop network roles” (Harland & Knight, 1999, p.925).
Private to public sector view	“(This paper) explores the nature of public sector supply, identifying factors particular to public as opposed to private sector decision making” (Harland et al., 2000, p. 1).
Sector level view	“Options for responses to imbalanced supply markets are explored ... leading to a decision-making framework for strategic interventions” (Walker, Knight, & Harland, 2001; p.858).
Interventions at different levels	“Matrix intended to assist decisions regarding what interventions are appropriate and by whom in public sector supply markets” (Harland, Walker, Knight, & Sutton, 2002, p.263).
New level of purchasing confederations	“(The research explores) ... the developing role of purchasing confederations in complex supply networks” (Walker, Knight, Harland, Fuller, & Greenwell, 2003, p.1).

outsourcing policies (Centre for Research in Strategic Purchasing and Supply, 2002) and sustainability (Walker, Harland, Knight, & McBain, 2004). There has been a shift from a focus on firm-based decision-making to researching supply activities at different levels. Examples include aggregated consequences of outsourcing (Walker et al., 2001), and levels of

supply activity (Harland et al., 2002). A further change is from reactive responses to changing market sectors to more proactive management and intervention in supply markets (Walker et al., 2001). The emphasis has been on public sector research, investigating roles in supply networks (Harland & Knight, 1999; Knight, Harland, & Warrington, 1998) with an awareness of the blurring of boundaries between the public and private sectors (e.g. through outsourcing and more integrated engagement of the private sector in Public Private Partnerships (PPP) and Private Finance Initiatives [PFI]).

## METHOD

### Longitudinal Action Research

This research is based in the UK public health sector, which is taken to comprise the National Health Service (NHS) and its suppliers. In 1991, a special health authority, the NHS Supplies Authority (NHS Supplies), was established to improve and co-ordinate supply management, by providing a national contracting and logistics service and a local supplies operation service, in and for English NHS hospital trusts. In April 2000, the core purchasing and strategy functions of this Authority were formed into the new NHS Purchasing and Supply Agency (NHS PASA), an executive agency of the UK government's Department of Health, providing a policy lead to the English NHS on matters relating to purchasing and supply.

During the course of the research partnership with NHS Supplies and NHS PASA, we have been able to conduct longitudinal action research over a nine-year period. Action research (Westbrook, 1995) is often used to address strategy development and practical implementation challenges, so has been suited to our working closely with practitioners in developing supply strategy. The appropriateness of a research approach derives from the nature of the social phenomenon to be explored (Morgan & Smircich, 1980). In previous work (Knight, Walker, Caldwell, & Harland, *In review*) we have reflected on the nature of time, timing and timeliness in longitudinal action research, both in terms of the research experience and the context in which the research is conducted.

The role of the researcher is not static, and has included roles such as educator, advisor and advocate, through to more subtle roles such as bringing a new 'supply strategy language' or discourse to supply management staff in the NHS. It is rewarding to hear terminology and concepts, developed within the research programme, being adopted by practitioners. Language and terminology flows the other way too, and is adopted from practitioners by the researchers, especially when sketching out

new research themes to be both scholarly and relevant to current NHS 'policy-speak'.

In a sense, this exchanging of language is due to the longitudinal nature of the research, but shows how immersed in a setting a researcher can become. Central to participant observation is both involvement and detachment – too much detachment and the researcher is not immersed in the setting. Too much involvement and researchers 'go native' or 'become the phenomenon'; it is rarely possible to remain uninvolved (Jorgenson, 1989).

Researchers decode one culture whilst recoding it into another, in terms their research peers will understand (Barthes, 1972). From a social constructionist perspective, people are seen as socially constructing the meaning and significance of their realities, ordering, structuring and making sense of the world around them (Berger & Luckmann, 1966). This resonates with the concept of sense-making in organisations (Weick, 1995). As longitudinal action researchers we acknowledge our part in this sense-making, in the context of developing the supply strategy concept.

### **The Context-Content-Process Model**

Pettigrew (1985) has argued that much research on organisation change is ahistorical, aprocessual and acontextual in character. Few studies allow the change process to reveal itself in any substantially temporal or contextual manner. To assess how supply strategy has evolved during this longitudinal research, we use Pettigrew's (1987) Context – Content – Process (CCP) framework; paraphrasing, we review the 'what' of supply strategy change by analysing content, the 'why' of change is derived from an analysis of inner and outer context, and the 'how' of change can be understood from an analysis of process (Pettigrew 1987: p.658).

The CCP model was developed by Pettigrew and colleagues as a means of framing strategic change over long timescales in complex organisations, and therefore seems suitable for analysing the evolution of supply strategy in the NHS. It would, for example, be meaningless to compare supply strategies developed in the mid-1990s with very recent strategies without appreciating how the context in which they were developed has also changed. The CCP model emphasises recursive influences between elements of the model. In our case, efforts in the 1990s to adopt a more strategic approach to the management of supply have helped to shape 'inner context', which in turn has influenced the strategy development process and subsequent strategies.

Finally, as shown below, we find the model helps us to differentiate between, and yet be aware of convergence between, the changing context, content and process of NHS supply strategising and the context, content and process of researching supply strategy.

## **FINDINGS**

### **Outer Context**

All public sector services are provided in the macro-environment, containing political, economic, societal and technological factors (Porter, 1980). During the course of our research programme, our research themes have reflected changes in each. For example, there has been a change in government during the course of the research programme, and associated changes in supply policy. The change from compulsory to voluntary competitive tendering of certain services (including catering, laundry, and hotel services) became apparent as government policy on outsourcing in the public sector changed. Subsequently, an outsourcing research strand began. Similarly, in line with economic policy there has been a change in onus from cost cutting to achieving value for money, to the pursuit of efficiency savings. Greater concern within society with issues such as fair trade, ethical supply and child labour are reflected in the government's sustainable development agenda, and have led to a research theme on sustainable development and supply. Technological advances have led to the growth of e-business, and the strategic case for e-business has emerged as a further research theme.

### **Inner Context**

The role of the Agency changed when it became an executive Agency of the Department of Health. Formerly NHS Supplies prior to April 2001, it went from being concerned with more operational and management contracting activities to concern with strategy and policy. It also changed from conducting fee-based contracting to being part of the civil service, with a remit as a centre for excellence for the NHS in purchasing and supply.

The organisation of supply structure has changed, from Supplies staff throughout the NHS being employed by NHS Supplies, to decentralisation of their jobs to NHS Hospital Trusts. More recently, NHS Supplies Confederations have been piloted which are consortia of NHS Trusts. Where as NHS Supplies and Logistics used to be viewed as providers of operational logistics services, now there is a greater acceptance of the

strategic value of supply, and the need to engage with Trust Board leads and with clinicians.

Supply strategy was initially introduced as a corporate initiative in which every purchasing team took part. More recently, supply strategies have been developed in response to Minister's questions or adverse media necessitating a strategic review of a product or service. For example, decontamination services became a more pressing issue for review following a BBC Panorama programme highlighting the theoretical link between the decontamination of surgical instruments and a theoretical risk of variant Creutzfeldt Jacob Disease (Harland et al., 2002).

### **Content**

Initially, supply strategy formulation was undertaken in three months over the summer of 1996. Senior members of each portfolio were involved, including pharmaceuticals, food and nutrition, IT and office services, medical and surgical, facilities and utilities, professional and financial services, diagnostic medical equipment and rehabilitation services.

More recently (2002-3), supply strategies have been developed using the 'Appropriate Levels for Supply Workbook' for clinical waste management, decontamination, and wheelchair hardware. Using the workshop method (2003), supply strategies have been developed for cardiology, sutures, pathology, and enteral feeds. Examples from each supply strategy development technique are now given.

Supply strategy implementation has reached different stages for different products and services, and the outcomes are varied. From the supply strategies developed using the workbook in 1996, notable successes have been establishing the Prosthetics Supply Strategy Group, with representatives from all stakeholders in the prosthetics service, and which provides inter-organizational co-ordination and facilitates the strategic development of the service. Less successful outcomes were achieved for Food and Nutrition supply strategy, in part due to it addressing a particularly complex issue in the NHS that had significant supply market dominance and fragmentation (Harland & Knight, 1998).

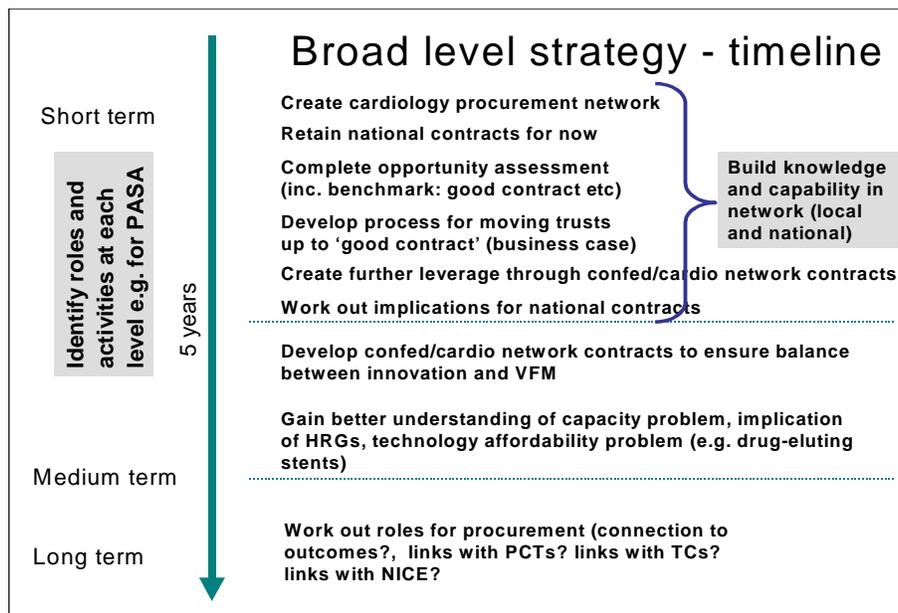
The supply strategies developed using the 'Appropriate Levels for Supply Workbook' (2002) were different in that they explored interventions at different levels, and practitioners were encouraged to identify what they perceived to be the key factors affecting the appropriateness of interventions. For clinical waste management, these included managing the sustainability of supply in the future, regulation and legislation, and NHS

management structure. For decontamination, key factors included market demand, changes in market structure, competences, and political intervention. Such factors highlight the differing contexts of each supply strategy, and influence implementation. For both supply strategies, strategic reviews were being conducted, and using the workbook was timely.

Out of the four supply strategies developed in the levels workshop in 2003, cardiology is the only supply strategy that has real momentum, in part due to the commitment of the Director of Research at NHS PASA who leads the group. The supply strategy is summarized in Figure 1, which describes supply activities over a five-year timeline.

Members of the cardiology group observe that if one Trust gets a good contract from a supplier, other Trusts may get worse deals to compensate i.e. suppliers use cross-subsidisation across Trusts. A joined-up approach aims for all Trusts to benefit, preventing suppliers manipulating the supply market. Whilst there is collective commitment to this approach, it remains to be seen how current strategies (shown in Figure 1) for different cardiology products will be implemented, and ultimately what outcomes will be.

**FIGURE 1**  
**Cardiology Strategy Developed from Levels Workshop 2003**

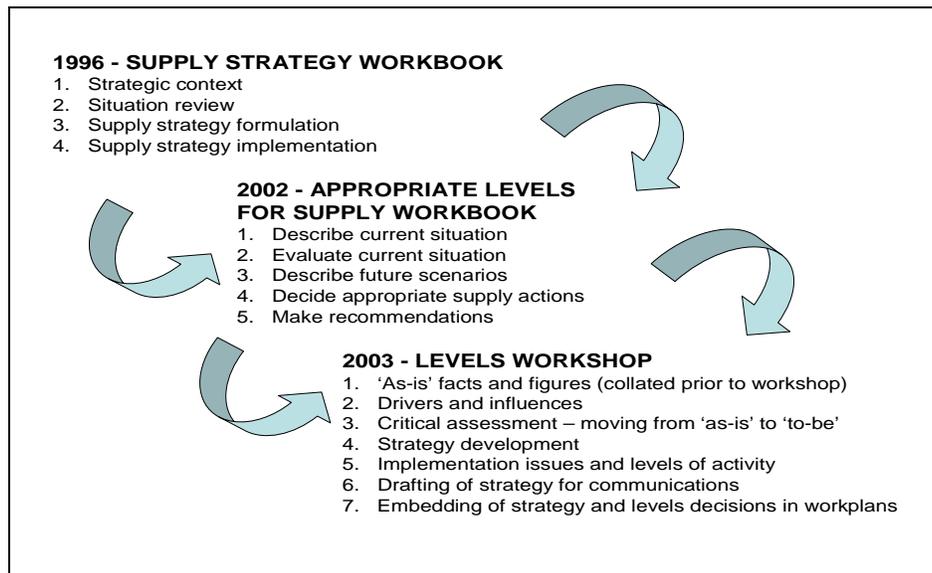


## Process

The process for developing supply strategy has evolved. Two workbooks, the Supply Strategy Workbook (Harland & Cooper, 1996) and the 'Appropriate Levels for Supply Workbook' (Walker, Knight, & Harland, 2002) have been developed during the course of the partnership, and more recently a workshop (2003) has been developed, based on the most recent workbook.

The first workbook (1996) had four main phases in supply strategy formulation, and drew on a variety of techniques to assist in the process. The second workbook (2002) assessed the current 'as-is' context and capabilities, and evaluated appropriate levels for supply, using the supply interventions matrix. Future 'to-be' scenarios were outlined to choose the most appropriate strategic direction. The workshop methodology (2003) marked a further iteration in the process of developing supply strategy, and also drew on a variety of tools (e.g. assessment of the power balance between customer and supplier, risk assessment, and competences). The evolution of the steps in the workbooks and workshop are illustrated in Figure 2.

**FIGURE 2**  
**The Evolution of Steps in Workbooks and Workshop**



Throughout, the methods have been co-adapted with NHS PASA to meet Agency needs. For example, the 'Appropriate Levels for Supply Workbook' came about due to the introduction of pilot NHS Supply Confederations and the need to evaluate 'who does what at what level' across the NHS. Previously, purchasing had predominantly taken place at national or local level, but this new level or tier provided an opportunity to assess appropriate levels for supply.

With the advent of the workshop, supply management practitioners from across the NHS are being engaged in ongoing supply strategy development, rather than it being formulated by NHS PASA staff. This is particularly notable in cardiology, where involvement has extended to NHS Supply Confederations and NHS Trusts. This 'bottom up' involvement has the advantage of gaining commitment to a collective strategy across the NHS supply management community, which may allow a joined-up approach to supply market management. This seems to be indicative of a cultural change of greater inclusiveness and openness within the Agency, that is possibly a reflection of the current leadership style, and a drive within the NHS to improve inter-organizational co-ordination and develop shared services.

The process of developing supply strategy has evolved to include embedding the supply strategies into workplans, with a greater emphasis on implementation issues. Rather than a supply strategy being 'a piece of paper', a document developed by a group as part of a review and then left to gather dust on a shelf, supply strategy is in the 'doing'. It necessarily involves activity, not just planning, as exemplified by the ongoing activities of the cardiology supply strategy group, where supply activities at different levels are being planned and implemented.

Developing supply strategy takes a significant amount of time and facilitation, whether it involves a team using a workbook or a group attending a workshop. For example, the number of hours required ranges between 5 people spending 1½ days when using the 'Appropriate Levels for Supply Workbook' to develop clinical waste supply strategy, to approximately 20 people spending 1 day at a workshop as part of ongoing cardiology supply strategy development. These examples do give an indication of the commitment and resources required when developing supply strategy.

## DISCUSSION

In the sections above, the changing context, content and process of developing supply strategy have been reviewed. Pettigrew emphasises the recursive influences between the context, content and process of strategic change (Pettigrew, 1985, 1990). The three elements are intertwined, for example, changing context (e.g. new NHS structure with NHS Supplies Confederations) has marked a change in process (e.g. Appropriate Levels for Supply Workbook) which in turn has affected the content of supply strategy (e.g. cardiology supply activities at different levels).

Common to several supply strategies has been the need to establish a network (e.g. cardiology supply network) to drive forward supply strategy implementation. The need for engagement with clinicians has emerged as a common issue across several supply strategies. Investment is needed in developing skills, competences and resources at appropriate levels across the NHS supply management community. It has been argued (Weick, 1987) that actions can substitute for strategy and that the pretext for action is less important than the action itself, a strategic plan being one of the pretexts for action. The need to embed supply strategy in business plans and focus on implementation and outcomes has emerged in later iterations of the process of developing supply strategy. Several enablers and barriers to supply strategy formulation have been identified, which are summarised in Table 3.

Future interest includes 'generic' supply strategies and evolving a contingent approach to supply strategy. An example of generic strategy could be dealing with lack of competitiveness in supply markets, by encouraging competitors into the market, or encouraging innovation. A range of supply interventions have been identified in terms of purchaser – supplier relations (Walker et al., 2001), 'some being more aggressive, some more collaborative, some involve central action, others are aimed at regional and trust levels' (p.857). The analysis of supply interventions may lead to the development of generic supply strategies, which would assist practitioners in decision-making.

### Conceptual Development

In the literature review, we showed how research in the field of purchasing and supply and operations management is developing, and drew parallels in the way we have conceptualised and defined supply strategy in this longitudinal action research programme. The conceptual development

**TABLE 3**

Barriers and Enablers to Supply Strategy Formulation

<b>Enablers</b>	<b>Barriers</b>
<ul style="list-style-type: none"> <li>- Have a champion to keep momentum</li> <li>- Have independent facilitation</li> <li>- Choose an appropriate issue, product/ service or supply market to focus on</li> <li>- Prepare and circulate market data collection activities prior to developing supply strategy</li> <li>- Identify key factors affecting appropriateness of interventions</li> <li>- Have a staggered and increasing involvement of NHS Confederations and NHS Trusts</li> <li>- Once supply strategy is drafted, gain commitment by consulting widely across the NHS supply management community</li> <li>- Use wider group as a basis for establishing a supply strategy network</li> </ul>	<ul style="list-style-type: none"> <li>- Taking on too complex or nebulous an issue or supply market – it may be easier to break categories down so that supply strategies are developed for different products / services</li> <li>- Focusing too tightly on a product and ignoring the service aspects (e.g. wheelchair hardware)</li> <li>- Underestimating resource and time requirements</li> <li>- Neglecting implementation issues and embed in workplans</li> <li>- Neglecting clinical engagement</li> <li>- Neglecting capabilities and skills</li> </ul>

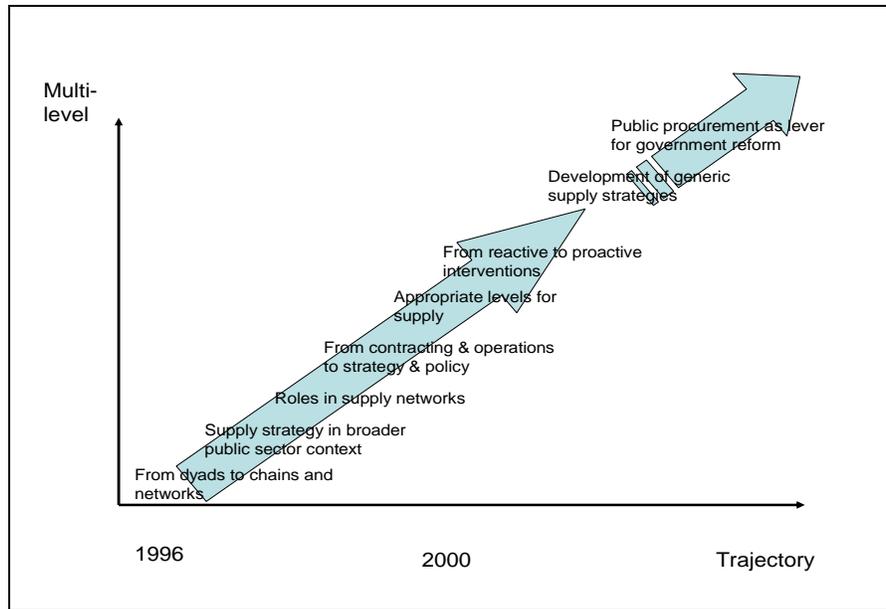
of supply strategy and its trajectory are represented in Figure 3. It is not intended to present the causation of change as linear or singular; explanations of change are bound to be holistic and multi-faceted (Pettigrew, 1990). It gives an indication of how our approach has evolved recursively through various levels of analysis, and through the changing context, content and process of supply strategy development. As, over time, the engagement and commitment of the public procurement practitioner partners to the research has increased, the ‘joining up’ of decision making within the action research has been possible. This collective, rather than organisational procurement decision making, has enabled public procurement to be used as a lever of reform in a proactive way.

### CONCLUSIONS

Using Pettigrew’s (1987) Context-Content-Process framework, this paper has examined how supply strategy has developed over a nine-year period in a longitudinal empirical action research study. Many top US journals will

still not publish academic papers reporting action research findings, on the

**FIGURE 3**  
**The Conceptual Development of Supply Strategy and its Trajectory**



grounds that it is not scientifically rigorous. However, the complex context of supply arrangements in the NHS confederation demanded a depth of research that only in-depth case study research could deliver. The changing nature of the arrangements, and the NHS, made time a key variable, so longitudinal research enabled the tracking of those changes over time in a deep way, as advocated by Pettigrew (Pettigrew, 1987).

During this time, the concept has evolved to be more holistic, strategic and collaborative; the conceptual development has been parallel to changing organisational arrangements and status of procurement within the NHS, with each iteratively feeding the other. From what was originally, in 1995 in the NHS Supplies Authority, a more operational, logistics oriented role, the NHS Purchasing and Supply Agency has taken on a 'head office' policy and strategy role for and on behalf of the entire NHS confederation. Members (for example, hospital Trusts) of the NHS Confederation now work together in collaborative consortia enabling collective strategy formulation and implementation. In this way, public procurement within the NHS is becoming more proactive and strategic, rather than reactive to the

commercial actions of suppliers. The commitment to collective strategy encouraged the researchers to develop the concept of supply strategy to address organisational levels of intervention in the total supply system. Using the developed concept to formulate strategy at these different levels enabled the practitioners to intervene in a collective, strategic way. In the collaborative programme described in this paper, practice changed the research and research-changed practice. Significant progress has been made, and more is needed.

Practical knowledge is “not a timid and stuttering form of science. One deprives oneself of all means of understanding if one tries to reduce it to a moment or stage in technical and scientific evolution” (Levi-Strauss, 1966). “A wider and deeper form of engagement between researchers and practitioners would entail experimentation with the co-funding, co-production and co-dissemination of knowledge” (Pettigrew, 2001). “Engaged scholarship” (Van De Ven & Johnson, 2004) is a way for academics to put their theories into practice and managers to put their practice into theory. This style of research is highly appropriate for public procurement because of its complex, practical and dynamically changing nature, and also because taxpayers and citizens deserve to have their money spent strategically and wisely.

Future research includes further evolution of the concept of supply strategy, and further iterations of the techniques that are used to develop and implement it. The identification of generic supply strategies that can be implemented contingent upon the circumstances is also being pursued, as is applying the techniques in different ways. For example, work is underway to assess appropriate *sustainable* supply activities at different levels. The role and contribution of public procurement is changing, with greater awareness of how changes in spending patterns can lever social reform. Implications for practice include continued engaged scholarship, working with academics on the evolution of supply strategy concepts and tools in ways that assist in decision-making in complex supply networks with multiple stakeholders.

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