

**OVERCOMING DEMAND MANAGEMENT PROBLEMS:  
THE SCOPE FOR IMPROVING REACTIVE AND PROACTIVE  
SUPPLY MANAGEMENT IN THE UK HEALTH SERVICE**

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**ABSTRACT.** This paper demonstrates, using empirical cases from the National Health Services (NHS), how existing practices in demand specification, procurement and supply management fail to address the significant problems caused by the misalignment of demand and supply. When examining internal demand management a number of problems arise including: product over-specification, premature establishment of design and specification, frequent changes in specification, poor demand information, fragmentation of spend, maverick buying, inter-departmental power and politics, and the risk-averse nature and culture of the organisation. It is argued that unless these problems are addressed and eliminated the NHS will not be in a position to select the most appropriate reactive or proactive approach from the range of sourcing options available. An improvement path that NHS Trusts might follow to achieve more efficient and effective procurement and supply management is outlined.

**INTRODUCTION**

Recent research funded by NHS Purchasing and Supply Agency (PASA) and supported by a consortium of NHS Trusts highlighted both

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the scope for potential entrepreneurial action and the many barriers to reactive and proactive supply management practices within the UK National Health Service. This article demonstrates, using empirical cases from the NHS Trusts, how existing practices in demand specification, procurement and supply management fail to address the significant problems caused by the misalignment of demand and supply, leading to an inability to recognise the subsequent potential for better reactive *and* proactive supply management.

The research has demonstrated that in the buyer-supplier relationship, suppliers to the NHS base their deals on the relative attractiveness (in terms of volume, regularity and salience) of the business. However, issues related to the management of internal demand such as product or service over-specification, premature establishment of design and specification, frequent changes in specification, poor demand information (a lack of basic demand management information and a robust way of controlling), fragmentation of spend, maverick buying, inter-departmental power and politics, and the risk-averse nature and culture of the organisation prevents the NHS from maximising the attractiveness of its business. The failure to overcome these 'barriers' inhibits the NHS from improving their current reactive supply management strategies and thereby reduces their ability to capitalise on their true market position and potential buying power. In addition, this failure also prevents the NHS from developing any form of proactive entrepreneurial approach for the management of their extended supply chain.

As a result, the Trusts in the majority of their external sourcing relationships receive less value for money than would be possible from a more effective and appropriate linkage between internal demand and external supply. The cases within this article demonstrate that without compromising on quality or functionality, a cost reduction would be possible in the region of 15-20% on what is currently being achieved, if appropriate reactive national, regional and local alignment strategies were adopted. This figure could be significantly higher if the NHS Trusts were able to act in a proactive manner to reconfigure the first tier and, when possible, the entire supply chain.

### **REACTIVE AND PROACTIVE SOURCING STRATEGIES**

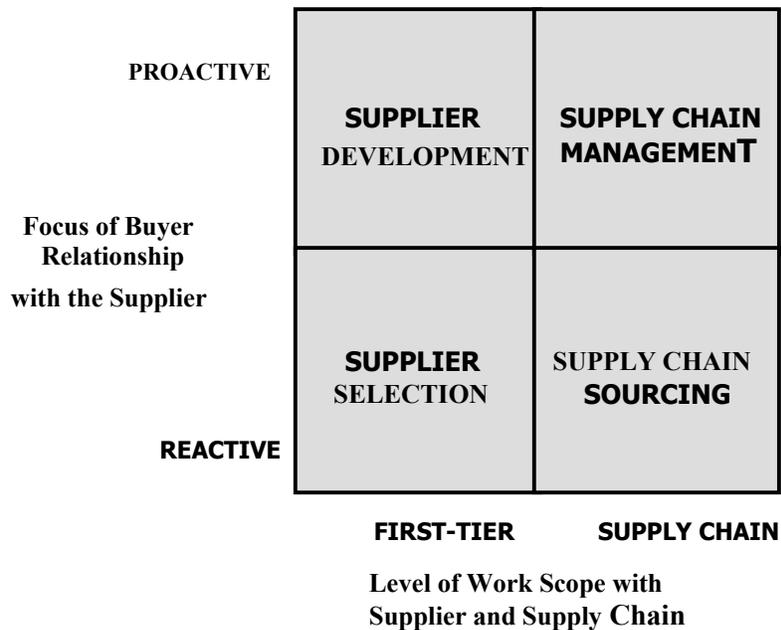
Before discussing the internal demand management issues in more detail, it is useful to introduce why they might occur. According to Pfeffer (1981), most business organisations operate within an environment where conflict, politics and individual limitations are commonplace and action can only be achieved incrementally through compromise, bargaining and experimentation. In this environment, individuals have different and conflicting preferences as a result of bounded rationality, functional cultures and the principal-agent problem. These factors provide an indication of why internal clients may have different and conflicting preferences in the sourcing of products and services from the external supply market leading to the adoption of inappropriate supply relationships. It also forms the basis for arguing why factors such as product or service over-specification, premature establishment of the specification, frequent changes in the specification, poor demand information, fragmentation of spend and maverick buying may occur.

#### **Sourcing Options for Procurement and Supply Management**

In recent years, there has been considerable debate about the best way for buyers to manage their external supply relationships. This debate, encompassing the lean and agile literature, frequently advocates the movement from short-term adversarial relationships towards longer-term collaborative associations based on trust and coordination of the supply chain. However, although these relationships may be ideal for buyers when they manage suppliers in particular circumstances, buyers have to manage business relationships across a range of very different situations. Therefore, understanding the range of theoretically possible sourcing and relationship management choices available for buyers, and when these are appropriate to the specific circumstances in supply chain networks is critical for effective supply management. Implicit with this is an understanding of the underlying demand and supply circumstances that impact upon buyer and supplier exchange.

Space does not allow for a full specification of all of the issues that need to be addressed in understanding the full range of sourcing options available to buyers when they interact with suppliers and when each is appropriate; this has been provided elsewhere (Cox, Lonsdale, Sanderson & Watson, 2004a, 2004b, Cox, 2004a). Figure 1 shows a theoretical

**FIGURE 1**  
**The Four Sourcing Options for Buyers**



Source: Cox et al. (2003)

distinction of the four buyer-sourcing approaches that links together the level of involvement buyers can have with suppliers (reactive or proactive), as well as the nature and degree of their involvement with suppliers (first-tier and within the supply chain).

### ***Supplier Selection***

This sourcing option is the most frequently adopted by buyers predominantly for two reasons. First, buyers often do not have the time or internal resources to work closely (and proactively) with a particular supplier to engineer improvements in the value for money attainable from the relationship. Second, when the supply market is highly contested with ample interchangeable suppliers, the market itself will drive innovation. The desire to win new business will drive the supply market to constantly innovate and thereby pass on value in the form of improved functionality and or reduced cost to the buyer. Under these

market circumstances, it would not be necessary or cost effective for the buyer to tie up valuable resources in proactively marshalling improvements in value for money. Therefore, the most appropriate way of working with suppliers would be for the buyer to operate in a fairly arm's length and reactive way, with relatively short-term relationships (Cox, Ireland, Lonsdale, Sanderson and Watson, 2003).

### ***Supply Chain Sourcing***

Supply chain sourcing is a very similar sourcing option to supplier selection. The main difference here is that the buyer will undertake supplier selection activities of a reactive nature with the total supply chain, or within as many tiers of it as possible. The buyer will still operate in an arm's length, reactive way with relatively short-term relationships, but the buyer will now attempt to select suppliers from the upstream tiers of the supply chain. This approach requires more time and effort, as there is the need to develop more sourcing relationships than supplier selection. Market contestation is again used as the primary driver for improvements in value for money.

### ***Supplier Development***

The approaches outlined above are reactive in essence, as the buyer will make selection decisions based upon the suppliers' current offerings within a competitive and open marketplace. Buyers do, however, have the choice to operate in a more proactive manner. Supplier development operates at the first-tier but requires a greater degree of dedicated investment by the buyer in the supplier than with supplier selection. When a buyer chooses to operate more proactively, then the most appropriate form of relationship will be to move toward a longer-term collaborative relationship. The incentive of a regular revenue stream will also persuade the supplier to make the necessary investments to work closely with the buyer to engineer improvement in value for money (functionality and/or cost). Clearly under these circumstances, the buyer will have to invest considerable financial, technical and personnel resources into the relationship. Market contestation can no longer be relied upon to drive innovation.

### ***Supply Chain Management***

This is the most demanding and challenging of the four options for buyers but may potentially be most advantageous: having undertaken

strategic source planning, the buyer assesses the scope to undertake proactive supplier development in the entire supply chain or significant upstream elements of it. This requires extensive coordination of internal business functions and a linking together of all the buyers and suppliers in the chain so that they are able to focus their procurement and supply strategies on the delivery of improvement in functionality and lower costs of ownership for the ultimate buyer in the chain. Fundamental to adopting this option is collaboration at a supply chain level (Cox et al., 2003).

It is evident that the NHS as a buyer could choose to develop proactive, long-term collaborative relationships throughout the chain for many of their important areas of spend. If these relationships can be directed towards constant innovation on functionality, quality and cost then it is natural to assume NHS Trusts as the buyer at the end of the chain will be in the most advantageous position to benefit from improvements in value for money. Conversely, the NHS Trusts must also be aware that although theoretically a proactive approach, such as supply chain management, could bring about the greatest improvements in value for money, this is in practice the most difficult to implement.

Buyers within the NHS are, however, faced with significant obstacles before the appropriate sourcing option can be pursued. As is often the case for buyers, internal demand constraints act as effective barriers to the appropriate choice of reactive or proactive supply management. The next section will outline these barriers. The presence of these barriers will then be examined in two cases for major areas of expenditure within the NHS.

#### **BARRIERS TO EFFECTIVE INTERNAL DEMAND MANAGEMENT**

As discussed there are a number of intra-organisational barriers, which if present may act as significant obstacles for better internal demand management. These are outlined below.

##### **Product or Service Over-Specification**

In many organisations, the buyer's internal client—a surgeon (within the NHS), engineer, or operations manager—often seeks to over-specify the product or service required. This is often referred to as the “gold-plating” of requirements, where the product or service is specified in a way that exceeds the organisation's requirements. This can be in terms of

technical requirements and/or commercial considerations. Subsequently, the internal client's (and buyer's) requirements are far more difficult and/or costly to service.

### **Premature Establishment of the Specification**

If internal clients build a supplier's offering into their design before the organisation has had an opportunity to negotiate with the supplier, the buyer may become locked into the supplier. If the buyer's purchasing team starts to negotiate with the supplier after the organisation has accrued significant sunk costs in their solution, then it will be negotiating with a supplier that effectively has a monopoly position.

### **Frequent Changes in the Specification**

Organisations that procure complex services often experience a problem associated with the potentially high level of specification change because of the level of uncertainty that surrounds such purchases. However, these pre- and post-contractual problems may be exacerbated by internal client behaviour. The resulting frequent changes to the specification, again after it has built up significant sunk costs in the supplier's solution, will leave the organisation vulnerable to opportunistic behaviour, even at the pre-contractual stage. Furthermore, the supplier may have to make costly, last-minute alterations to their processes in order to accommodate the changes, thus increasing the nuisance value of the customer to the supplier.

### **Poor Demand Information**

A significant demand management problem relates to the inability of the organisation to access (and analyse) accurate demand information. Poor demand information leads to supply chain players keeping high levels of inventory as insurance, which is against the principles of lean supply (Hines, Lamming, Jones, Cousins & Rich, 2000). Furthermore, the late placing of orders due to poor demand information makes it difficult for the supplier to pre-plan its production activities and may require the supplier to pay a premium for its own inputs, which it will seek to pass on. Poor demand information clearly puts the organisation in a poor negotiating position in relation to the supplier.

### **Fragmentation of Spend**

This is a very common demand management problem. Most organisations buy 'equivalent' products from a large pool of different suppliers, often through small quantity orders placed at frequent intervals. This situation is often due to internal clients having their own personal preferences for certain products and having their own favourite suppliers. Each separate transaction is of limited value, thus increasing product costs, and the multiple interactions will also lead to higher transaction costs. Leverage opportunities are not possible and the attractiveness of the buyer to the supplier is significantly reduced.

### **Maverick Buying**

In most organisations, there is a fairly high incidence of internal clients, either buying outside the contracts that have been set up, or buying using procedures that are not compatible with optimising value for money. Therefore, the maverick buyer is unlikely to have access to the requisite supply market information and will not possess the necessary competence in contracting and negotiating. As a result, there will be a further fragmentation of the organisation's spend, resulting in loss of commercial leverage and the organisation's being faced with higher prices. Maverick buying diminishes the relationship between volume and value that underpins the agreements with approved suppliers, thereby destroying the credibility and relative power of the buyer.

### **Inter-Departmental Power and Politics**

Individuals or departments will have either vertical or horizontal power resources, which can be drawn upon to either help, or hinder, change within an organisation. At the heart of this is the concept of the principal-agent problem. Managers within departments may have conflicting loyalties when working within organisations. They have loyalty to the organisation, which pays their wages, but also to their department, themselves and their careers. When these loyalties are in conflict, most managers will take action that favours the latter. Internal clients will often, therefore, make sourcing decisions that will secure their own personal advantage rather than furthering the wider interests of the organisation. When the person or department has a high level of intra-organisational power (according to Pfeffer and Salancik (1978) this is related to the relative level of dependency, financial resources, centrality, non-substitutability and ability to cope with uncertainty vis-à-

vis other individuals or departments), they will have the ability to obstruct any drive to improve internal demand management, if they so desire.

### **Risk Adverse Nature and Culture of an Organisation**

The very nature and unique culture of an organisation may act as a further barrier to more effective demand and (subsequent) supply management. Organisations, which tend to be highly risk averse, may find it difficult to adopt the necessary organisational changes required to overcome some of the internal demand problems highlighted thus far. Although not necessarily a direct cause of ineffectual demand management, an organisation's overriding culture can still act as a serious barrier to change.

The existence of these internal demand management barriers often reduces the attractiveness (utility) of the buyer to the supplier. Depending upon the specific market conditions, the existence of these barriers can increase the leverage that the supplier has over the buyer. Subsequently, the buyer may be unable to achieve the desired levels of value for money from the relationship.

It has been argued that there are four primary sourcing options open to buyers, which can be used to maximise the trade-off between cost of ownership and functionality. In order to maximise value for money, organisations must first overcome internal demand problems discussed and then select the appropriate sourcing option to maximise their ability to leverage suppliers.

## **THE RESEARCH PROJECT AND METHODOLOGY**

The research project was developed in response to a real need from public sector organisations—the identification of best practice in supply management for the NHS to improve value for money and avoid supplier opportunism. As stated previously, there is a significant debate within the business literature as to what constitutes 'best practice' with regard to effective supply chain management (Christopher, 1992; Cox, 1997; Cox et al. 2002; Cox, 2004a; Hines, 1994; Hines et al. 2000; Lamming, 1996; Saunders, 1998). Recently, following the lead of 'exemplar' firms within the private sector, organisations within the public sector, including the NHS, have sought to adopt sophisticated procurement tools and techniques without fully understanding their appropriateness to their

specific business and supply chain environments (NHS PASA, 2002). In the pursuit of similar operational benefits, procurement practitioners have often blindly adopted inappropriate approaches that have led to significant problems in the longer-term. As a result, public sector organisations are commonly prevented from achieving their value for money objectives and the large private sector firms that typically operate at the first-tier are able to earn above average returns at their expense. It is these problems that the NHS wanted to overcome.

The research project has examined the appropriateness of current procurement and supply chain management approaches for a number of key items of expenditure (hip prostheses, anti-infection drugs, footwear, infusion pumps and administration sets). By focusing on the hip prostheses and footwear cases, this article discusses a number of key issues that raise the question of whether the problems with maximising value for money are caused by the current management of demand and/or supply.

The last section of the paper will focus on a number of operational improvement paths that the NHS Trusts could follow to achieve more efficient and effective procurement and supply management. This considers the ability of the NHS to adopt reactive or proactive supply management approaches at the level of the first-tier or entire supply chain.

## **CASE ONE: THE NHS FOOTWEAR AND INSOLES SUPPLY CHAIN IN THE WEST MIDLANDS**

### **Background**

NHS supplies estimated that between £80-160 million per year is spent on orthotics services. The services provided are described as disparate, poorly managed and lacking in accountability. Footwear and insoles are a significant part of the total orthotics services (approximately 60%).

The term “orthosis” is defined by the International Standards Organisation as ‘an externally applied device used to modify the structural and functional characteristics of the neuro-muscular and skeletal system.’ This includes equipment such as leg and back braces, however, for the study we specifically looked at the technology and expenditure on footwear and insoles, an important part of orthotics

(approximately 60%). There are three kinds of footwear: stock shoes (generic), semi-bespoke or semi-customer-specific shoes (modular), and fully bespoke or customer-specific (dedicated 'last', plastic 'cast' for individual patient) shoes/boots.

The technology involved in making footwear has changed very little over the last 200 years. The process of making a custom-made shoe is highly skilled and labour intensive. Very little of the process, from the construction of the last to sewing of the uppers (completed by clickers) can be automated. Each patient will traditionally have his/her own last completed and stored for life, to be reused for future shoes/boots. The raw material for the construction of footwear and insoles includes leather, rubber, plastics and polyethylene, cork, lint and other items.

### **Internal Demand Barriers Present within the Trust**

It became evident that, regardless of the potential supply management approaches that may be adopted by the Trusts, there were serious internal demand barriers, which would have to be overcome prior to developing an appropriate reactive or proactive supply strategy.

#### ***Product/Service Over-Specification***

Orthotists were responsible for both the diagnosis and the detailed specification of the appropriate orthotic solution for patients. Unless a surgical solution was required, the clinicians (surgeons) deferred to the specialist knowledge of the orthotist. Orthotists were often free, or preferred, to specify a 'gold-plated' bespoke shoe for a patient. Without entering into the debate surrounding the issue of clinical versus cost effectiveness, there was a huge discrepancy between the levels of expenditure on bespoke compared to generic, or semi-bespoke shoes. Some Trusts were able to specify up to 75% of shoe requirements as generic or semi-generic (lower cost solutions), whereas other Trusts bought up to 90% bespoke shoes (high cost solutions). No clear reason for this difference exists, yet it indicates high levels of over-specification in some cases.

#### ***Premature Establishment of Specification and Frequent Changes in Specification***

The very nature of diagnosis and treatment of patients with orthotic related complaints tends to act as a barrier for better demand

management. It may be necessary in some cases to work directly with technicians within orthotic equipment manufacturers at an early stage of diagnostics to determine a suitable solution and specification to solve a clinical problem. For example, a uniquely deformed foot requires a specialist bespoke shoe to aid the patient's ability to walk. There may also have to be costly additional changes in the exact specification after an initial patient fitting has been made by the orthotist.

### ***Poor demand Information***

There is limited data sharing (and effective control) between the Trusts and PASA over the types of footwear/insoles that are currently being bought throughout the NHS. There is equally limited sharing of information between the Trusts as to both the items purchased and the specific suppliers used. As a result, there are huge variances between the Trusts. Some Trusts opt to procure from four or five preferred suppliers, whilst others will procure from over 25 different suppliers.

### ***Fragmentation of Spend***

The current structure of the NHS with independent Trusts has artificially fragmented the demand for orthotics services and products. Even with a degree of centralised co-ordination through PASA and national contract awards, there are still effectively 318 customers instead of one. This has resulted in there being significant variances in value for money attained from the marketplace for orthotics services, products and repairs by different Trusts. There are significant opportunities for consolidation of the footwear and insoles expenditure to increase the NHS Trusts' leverage in the supply market.

### ***Maverick Buying***

Although national framework agreements (NFA) are in place for suppliers of orthotic footwear and insoles, orthotists are still free in many cases to request bespoke shoes to be made by a specific manufacturer. There may be clinical reasons for going outside the national framework; however, individual orthotists often do not have a commercial awareness of the implications of using many different suppliers. In fact, some Trusts used over 25 different orthotic footwear and insoles suppliers, some of which were not included within the NFA, whereas another Trust used only two suppliers.

### ***Inter-Departmental Power and Politics***

There is a potentially serious conflict in the roles, responsibilities, authority and accountability for footwear and insoles products and services throughout the Trusts. The detailed knowledge of the relevant appliance/footwear, or insoles does not lie with the clinician, but with the orthotist. The orthotist will, however, also typically be employed by an equipment manufacturer. There are few appliance officers (or buyers) with the relevant knowledge to act as a safeguard to ensure value for money is attained by the orthotists. Orthotists also often lack the commercial awareness to be efficient buyers and have (along with the specific Trusts) developed long-term working relationships with particular manufacturers.

### ***Risk adverse Nature and Culture of the Organisation***

The NHS as a whole, like many public sector organisations, does not have a history of innovative thinking. The risk adverse nature of the NHS, driven primarily by political necessities, makes the elimination of the internal demand barriers problematic. This culture can also act as a barrier to the adoption of appropriate, innovative, reactive and proactive supply strategies when possible.

## **CASE TWO: THE NHS HIP PROSTHESES SUPPLY CHAIN IN THE WEST MIDLANDS**

### **Background**

Approximately 38,000 total hip replacements (THRs) (32,000 primary THRs and 6,000 revisions) are carried out in the NHS in England and Wales each year. THR represents a substantial resource cost to the NHS. In 2000, this figure was about £145 million a year. This equates to an average spend of £256,000 on the purchase of hip prostheses for each Trust.

The approximate cost of prostheses varies from £400 for a conventional cemented prosthesis to £2,000 for a hybrid prosthesis. A THR involves the insertion of a prosthesis that may consist of three elements: a (metal or ceramic) ball that replaces the femoral head; a (metal) stem that is inserted into the femur; and, a (metal, plastic or ceramic) cup that is inserted in to the acetabulum. The selection of

product materials, for example metal on metal, is a critical element in the selection of suppliers (some do not offer the full range of materials).

With regard to procedure costs, recent figures from the National Audit Office indicate that the cost of THR procedures including all associated costs to NHS Trusts ranges from £1,200 to £9,000 (with an average of £3,686). These include surgical, postoperative and rehabilitation costs. In THR procedures, patient matching is used to choose which prosthesis system to implant. It utilises a mixture of objective criteria, such as age and weight, as well as subjective criteria such as expected activity and general health. The commercial objective of this policy is to provide patients with implants that will meet their needs, but not exceed them, thereby ultimately reducing overall implant costs for NHS Trusts.

It is widely stated that there are in excess of 60 different hip prostheses, manufactured by 19 companies, currently being used in the UK. Despite a substantial proportion of these being introduced in the last decade, there are a significant number of hips that have remained popular for around forty years (e.g. Charnley, Stanmore and Exeter). Issues surround the introduction of new prosthetic technology. New hips have to demonstrate clinical effectiveness – a barrier that makes market entry significantly more difficult. A recent legal case brought by Zimmer and Cremascoli unsuccessfully challenged the National Institute for Clinical Effectiveness (NICE) guidelines on prostheses selection.

### **Internal Demand Barriers Present within the Trust**

The following discussion will highlight the internal demand management problems that have to be overcome before an appropriate reactive or proactive supply management strategy can be developed.

#### ***Product/Service Over-Specification***

The design and specification process (and procurement process) is largely dictated by the relationship between the surgeon and the sales reps of the first-tier suppliers. The consultant usually has a very strong preference for a certain firm's prosthesis that overrides any selection based on commercial factors. This preference is historical and with performance measured on procedure success is based on extensive training and product familiarity. Procurement does not usually have a direct involvement in the design and specification and supplier selection

process and just merely places the order. With the surgeons effectively selecting the suppliers, procurement's role in minimising cost while maximising quality is made all the more difficult. However, there is the argument that quality and clinical effectiveness are paramount and other non-cost factors such as training, stocking and instrumentation are more critical than cost itself.

### ***Premature Establishment of Specification and Frequent Changes in Specification***

The previous problem with the surgeon effectively selecting the supplier before a contract has been negotiated creates significant problems for effective supply management. The surgeon is not an 'intelligent client' due to a lack of information about the opportunity costs of alternative sources of supply. The scope for the procurement department of the NHS Trust to obtain a better deal is diminished when the supplier has already been 'appointed' and negotiations can only encompass the contractual terms. The precise requirements (size and type of prosthesis) may also change slightly when the procedure is underway. This means that significant stocks are absolutely essential and uncertainty surrounds regularity of spend for certain products. This has cost implications that are potentially unavoidable. In summary, there appear to be significant mismatches in roles, responsibilities, authority and accountability for artificial hip products throughout the Trusts. They are specified by surgeons and purchased by procurement professionals with different objectives. It is the specifying role of the surgeon that creates problems for effective procurement.

### ***Poor Demand Information***

As with the footwear, there is limited data sharing (and effective control) between the Trusts and PASA over the types of hip prostheses that are currently being bought throughout the NHS. There is also limited sharing of information between the Trusts as to the items purchased, specific suppliers used and sourcing strategies adopted. As a result, there is no consolidation of spend with hips being purchased from all of the major manufacturers.

### ***Fragmentation of Spend***

Following on from the above, the fact that Trusts act independently in the sourcing of hip prostheses from major first-tier manufacturers has

led to considerable fragmentation of demand. The ending of nationally negotiated contracts by PASA for hip prostheses led to the loss of centralised co-ordination of demand and the Trusts sourcing in an ad hoc manner from any of the 19 suppliers who could supply hip prostheses. Although, the top six firms account for 78% of the market, there are still considerable opportunities for consolidation of the hip prostheses expenditure to increase the NHS Trusts' leverage in the supply market.

Ultimately, effective consolidation and leverage will only take place across the Trusts if the surgeons are willing to coordinate their sourcing behaviour. However, discussions with surgeons have highlighted their resistance to change from their successful surgical procedures and practices for which they have received extensive training. This training creates high switching costs that have to be overcome.

### ***Maverick Buying***

As stated previously, with no national framework contract in place and the procurement effectively undertaken by the surgeons it is argued that there is evidence of maverick buying.

### ***Inter-Departmental Power and Politics***

There appears to be significant mismatches in roles, responsibilities, authority and accountability for artificial hip products throughout the Trusts. They are specified by surgeons and purchased by procurement professionals with different objectives. The specifying role of the surgeon creates problems for effective procurement; the surgeon wants to maximise functionality while procurement want to minimise costs. There was also evidence that the Trusts were dependent on a small number of key hip suppliers, a fact that adversely affects their ability to manage costs at an acceptable level. With the option of using contestation within the supply market to avoid being leveraged not available, the Trusts did not appear to have developed appropriate strategies to safeguard against the potential problems of supplier opportunism.

### ***Risk Adverse Nature and Culture of the Organisation***

The fact that the NHS has to minimise costs associated with delivering a service of the highest quality means that, like many public sector organisations, it has difficulty in acting in a commercial and innovative manner. The need to avoid risks associated with such activity,

combined with the culture of the organisation, makes the elimination of the internal demand barriers very difficult. These are also likely to act as barriers to the adoption of the appropriate sourcing strategies, regardless of whether they are reactive or proactive.

### CONCLUSION

It is evident from the two case studies that although there are significant differences in the characteristics of the two products discussed, they both have similar internal demand problems. The findings from these two cases are consistent with the findings in the other areas of spend examined in the research study discussed here; identical internal demand management problems were apparent throughout the other NHS Trusts cases analysed, regardless of the specific area of spend focused upon.

One of primary difficulties across the cases, which acts as a serious hindrance to the elimination or reduction of some internal demand barriers, relates to the role of primary 'specifier', e.g. orthotists, surgeons, or specialists. Although these specifiers play a pivotal role in the establishment of the design and specification of clinical solutions, they tend to have a general lack of interest and/or understanding of the commercial realities of procurement. For these items, the NHS Trusts are purchasing from restricted and complicated supply markets and the effective choice and potential for leverage is significantly diminished by the requirements and actions of these specifiers. Therefore, the specifiers need to have a basic commercial understanding of the items they are requesting to avoid the potential problems of sunk and switching costs, pre-contractual adverse selection and post-contractual moral hazard (Cox, 2004b). In addition, it may be useful if procurement professionals have a degree of clinical awareness as well in their discussions with clinicians.

Another area of concern relates to the potential conflict of interest with having the specifier commercially linked with the equipment manufacturer. This conflict was 'engineered' by the actions of the major first-tier supplier who understood the conflict within NHS Trusts and actively fostered relationships with the specifiers to secure long-term commercial associations in which lock-in was an objective.

Finally, the relatively powerful position of these specifiers within the NHS Trusts enables them to act as serious hinderers (enemies) or

powerful enablers (allies) to the implementation of more professional demand and subsequently supply management. An understanding of the following diagram is an important element in this process.

**TABLE 1**  
**Creating Internal Alliances: A Basic Segmentation**

		<b>Approach and Attitude of Actor to Cross-Functional Issues</b>			
		Cooperative		Uncooperative	
		<b>Organisational Power of Actor</b>			
		High	Low	High	Low
Understanding of the Procurement Issues Involved	Low	Potential Key Ally	Potential Ally	Loose Cannon	Irritant
	High	Key Ally	Ally	Key Enemy	Enemy

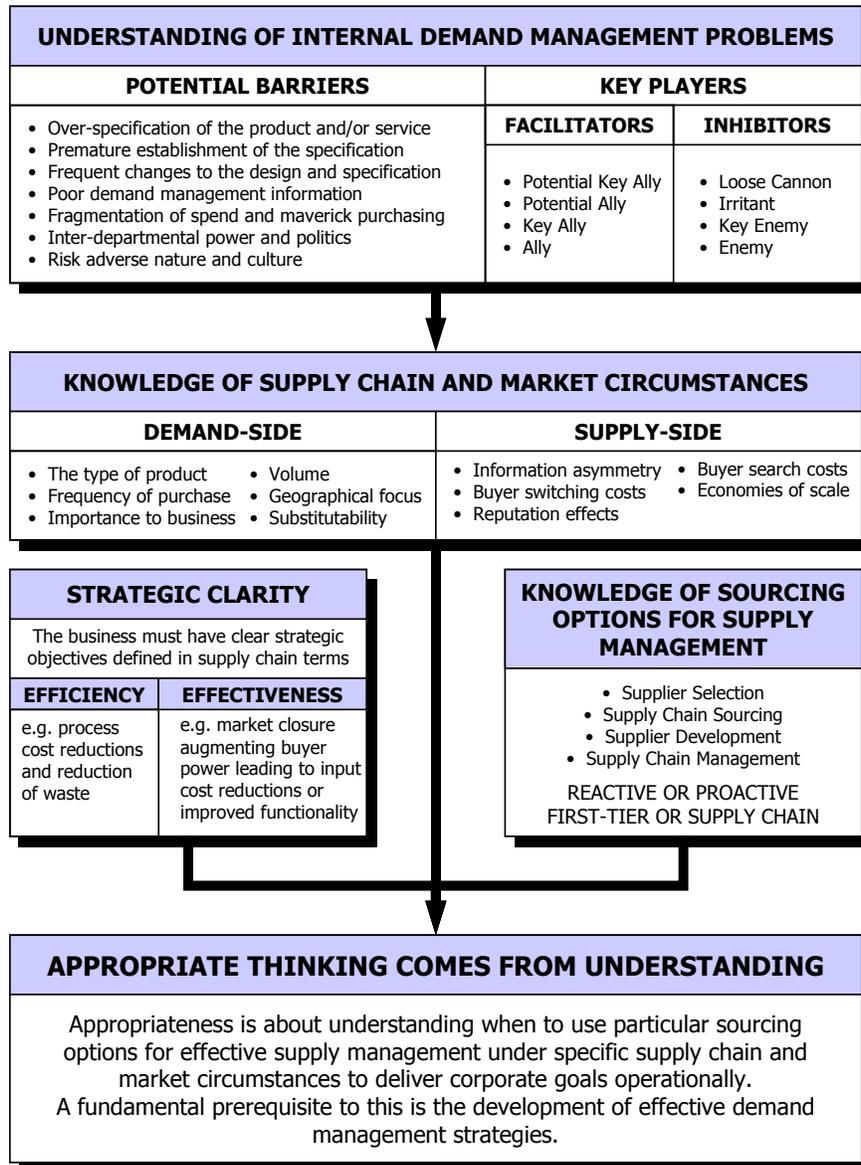
Source: Cox et al. (2003).

#### **APPROPRIATE REACTIVE AND PROACTIVE SUPPLY STRATEGIES**

Having established the need to overcome the highlighted internal demand barriers as a precursor to more effective reactive or proactive supply management, this paper suggests an improvement path that the NHS Trusts could follow to achieve more efficient and effective procurement and supply management of hip prostheses and orthotics services. This is shown in Figure 2.

The issue of appropriateness is fundamental to the framework. It is argued that this will enable practitioners to understand when particular sourcing options, including reactive and proactive supply management approaches, are suitable to the supply chain and market circumstances. The following discussion contains the recommendations flowing from the study in relation to the range of demand and supply management

**FIGURE 2**  
**Appropriateness in the Effective Management of Indirect Spend**



options that are available to the NHS Trusts in the sourcing of artificial hips and footwear.

***More Professional NHS Demand Management***

Initially, Trusts should separately develop a robust mechanism for collecting key demand management information for hips and footwear. Trusts should then work together to pool key information regarding volumes, prices, frequencies and terms of contract for the relevant products and services to establish a central database. At present, there is little reliable information available. The sharing of detailed demand information, in a common format, should enable effective consolidation of spend within these areas and a subsequent rationalisation of the supply base. The improved leverage should lead to significant enhancements in value for money. This recommendation is critical to the following two recommendations.

***Improved Reactive NHS Supply Management (at First-Tier or Total Supply Chain Level)***

This recommendation involves NHS Trusts, at a local or national level, sharing demand information regarding the types of footwear and insoles currently being purchased across the Trusts. This will allow a degree of localised and/or national co-ordination of design and specification and supply management for the items analysed. This will allow effective consolidation of expenditure for improved business leverage across the Trusts. The result would be to move away from a disordered and fragmented, to an ordered consolidated supply chain for both footwear/insoles and hips. Consortium sourcing may then be possible.

***Improved Proactive NHS Supply Management (at First-Tier or Total Supply Chain Level)***

This recommendation involves NHS Trusts' fully understanding the structures of power and level of value appropriation within the orthotics and artificial hip supply chains. The NHS has to act entrepreneurially to develop a new supply chain that eliminates these suppliers for key, high value items such as bespoke footwear and hips. This disintermediation within the supply chain will result in the NHS's undertaking the key role of the orthotics supplier and hip manufacturer and utilising the NHS Trusts internal expertise of orthotists, surgeons and specialists.

Common across the recommendations is the need for better management of demand prior to the development of an appropriate supply management strategy. Indeed, effective control of costs and delivery will only be obtained if design, specification and supply management is coordinated across Trusts. This will require key procurement information to be shared so that the first-tier suppliers can be effectively leveraged. The threat of switching suppliers also needs to be credible and not undermined by fragmented specification by internal clients.

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