



UK defence supply chain relationships

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A study of sustained monopoly

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Abstract *Business-to-business, supply chain relationships within sustained monopolies, such as those within UK defence procurement, have received scant attention by management researchers. This paper describes the results from a substantial, exploratory research project that used Williamson's organisations failure framework as a theoretical model. Surprisingly, it revealed that many issues surrounding supply chain management implementation were similar to those found in "normal" markets and that it played an important part in reducing the inherently negative effects of monopolistic relationships. The research sheds new and useful light on the dynamics of this unusual busin*

Introduction

Following the ending of the "Cold War" in 1989, the UK Government has sought a "peace dividend" through a reduction in expenditure on defence. However, continued participation in international conflicts and peace-keeping operations has required qualitative improvements to military capability to be maintained. With equipment expenditure of £10,408 million in 2000/2001 (DASA, 2002) this is still a strategically important element of UK Government spending and, as with other public sector areas, a relentless drive to achieve greater value for money has been pursued. A crucial element of this strategy has been to overcome traditional adversarial attitudes which have resulted in a succession of high-profile cost, time and project performance overruns. The intention has been to establish long-term supply chain partnerships with its industrial suppliers. However, in the face of global spending cutbacks the continued concentration of the defence equipment suppliers has resulted in an increasingly monopolistic situation. This is a very high technology business dealing with politically sensitive, limited availability goods and services in relationships that extend over many years. Each side wields considerable power, but lack of trust and the option to leave reduce efficiency, increase costs and offer little incentive to co-operate (Humphries and Wilding, 2001; Palmer, 2001; Parker and Hartley, 1997). Moreover, despite clear strategic intentions, the practical implementation of partnering arrangements by the UK Ministry of Defence (MoD) have been slow, patchy and clouded by uncertainty over ways



and means. Furthermore, the fundamental differences of aims by both sides appear to make the selection of common objectives difficult and problematic. Overcoming these difficulties is the business problem currently faced by UK MoD's logistics teams and their industrial suppliers as they attempt to create and manage complex supply chains delivering military spare parts, repairs and design services to UK military forces world-wide.

This paper thus explores the role of supply chain management (SCM) in the unusual domain of long-term, monopolistic business-to-business relationships. We first examine views from the literature, describe the difficult task of selecting an appropriate theoretical framework, and then describe a substantial research project carried out in the UK Defence Procurement Organisation which employs both quantitative and qualitative methods. It concludes from emergent supply chain relationship factors that the importance of SCM in "normal" markets is replicated in the monopolistic relationships surveyed, although specific adverse characteristic features are also revealed which may have parallels within the long-term collaborative relationships found in other sectors. We believe this offers practitioners useful guidance and academics with opportunities for further research.

Supply chain relationships

As already mentioned, the business of UK defence procurement is essentially the management of supply chain relationships which accords with Tompkins (2000): to achieve by co-operation "the synchronisation of the physical flow of goods from sourcing to consumption". In our brief review of the literature we therefore concentrate on the importance of relationships to SCM and compare the private and public sectors. Our aim is to expose the main dynamics in order to seek parallels with the research environment.

SCM is viewed as an integrative, proactive approach to managing the total flow of a distribution channel to the ultimate customer (Matthyssens and Van den Bulte, 1994). It aims to increase customer service reliability and reduce inventory (Boddy *et al.*, 2000) to lower uncertainty and costs (Cooper and Ellram, 1993; Lamming, 1993; Bechtel and Jayaram, 1997). It therefore depends on co-operative relationships throughout the supply chain in order to achieve benefits for all participants (Stevens, 1989) and this involves closer relationships between members, which include trust, commitment and collaboration (Spekman *et al.*, 1998). The literature contains a great deal of holistic advice on how this should be achieved but, in practice, it is generally operationalised as the integration of chains of suppliers to better satisfy customers (Christopher, 1997; Peck *et al.*, 2000). Nevertheless, although suppliers recognise the need to integrate with their customers, it is apparent that full SCM implementation is not being achieved for a number of reasons (Spekman *et al.*, 1998). The importance of long-term partnering relationships to focussing on complex problem solving (Hulme, 1997) is acknowledged. But, the need to base these arrangements on openness, shared risks and rewards that leverage the skills of each partner to achieve competitive performance not

achieved by the individual is a step that firms find difficult to take (Lambert *et al.*, 1996). Many are still taking a short-term view which tends them towards adversarial relationships (Braithwaite, 1998) and the development of partnering relationships is being obstructed by poor communications allied to reluctance to accept attitudinal change (Anscombe and Kearney, 1994). Nevertheless, the obligational nature of these arrangements to overcome opportunistic temptations is evident (Ellram and Edis, 1996) as is the importance of achieving good business-to-business relationships through partnering as a foundation for achieving the operational benefits of SCM (Cooper *et al.*, 1997). We conclude that increased pressures from customers in a more globalised business environment have forced commercial companies to adopt closer relationships with their strategic partners, but this demands a substantial investment in new management skills and cultural adaptation. UK defence procurement supply chain relationships are similarly long termed, inextricably linked and characterised by complex problems and, moreover, being also driven by global market conditions (concentration) and increased customer (MoD) sophistication to change (Humphries and Wilding, 2001).

The review up to this point has predominantly concentrated on concepts developed in the private sector, but in comparison, relatively little research has examined SCM within the public sector (Harland *et al.*, 2000). Networking theory considers focal firms, but not the larger systems of public sector supply, and describes important context variables but does not consider regulation. Porter's (1980) strategic management framework focuses on individual firm's vertical integration strategies compared to their competitors but does not consider the non-competitive aspects of the private sector. All offer some generalisable features that are relevant, but no one model or framework comprehensively addresses public sector SCM relationships (Harland *et al.*, 2000; Zheng, 1998). Harland *et al.* (2000), in their UK Health Authority research, list the following distinctive features of public sector supply chain organisations: large and specific services; remote customers; stakeholders are complex, difficult to integrate and crucial to success; dedicated market suppliers; reduced availability of alternatives; accountability to national interest rather than shareholders; the government makes the rules and can sanction anti-competitiveness; investment cycles are long compared to annual reports and returns on investment and finally, the government theme is dominated by politics. These factors are confirmed by Brooks and Pawar's (2000) research, which also concluded that the public sector is different and that the correlation with commercial supply chain relationships cannot be taken as straightforward. However, given that SCM aims to manage a limited number of complex business-to-business relationships over a longer term, there are some fundamental similarities of principle that seem to apply (Humphries and Wilding, 2000).

In conclusion, the importance of improving relationships to achieve successful SCM implementation appears to be well known to academia and business alike and, after more than a decade, is still actively pursued as a

strategy by the private and public sectors (Bechtel and Jayaram, 1997; Brooks and Pawar, 2000; Cooper *et al.*, 1997). The literature has highlighted a number of success and failure factors in the private sector and, in more limited coverage of the public sector, identified that similar business motivations exist but are complicated by environmental and stakeholder factors. Although these criteria are useful to this research, a significant gap exists when considering the very long, monopolistic supply chain relationships of the type found within UK defence procurement (Humphries and Wilding, 2001). It is intended that our research would help to fill this void.

A theoretical framework for research

A lack of research on business relationships within sustained monopolies hampered the search for an appropriate model through which to view UK defence procurement relationships. Both Porter’s (1980) five forces and Cox’s (2000) relation power analysis considered competition-limiting strategies but appeared to be optimised for use in “normal” markets. However, Williamson’s (1975) economic organisations failure framework shown in Figure 1 appeared to offer a viable theoretical model for research because it describes a stylised situation in a complex inter-organisational relationship where the costs of managing the risk associated with human factors such as opportunism become too high, the “market” breaks down and forces a firm to internalise the business, in effect creating an internal monopoly. It is thus possible to hypothesise that within a sustained monopoly of the type found within UK defence procurement where neither side has the opportunity to escape, the lack

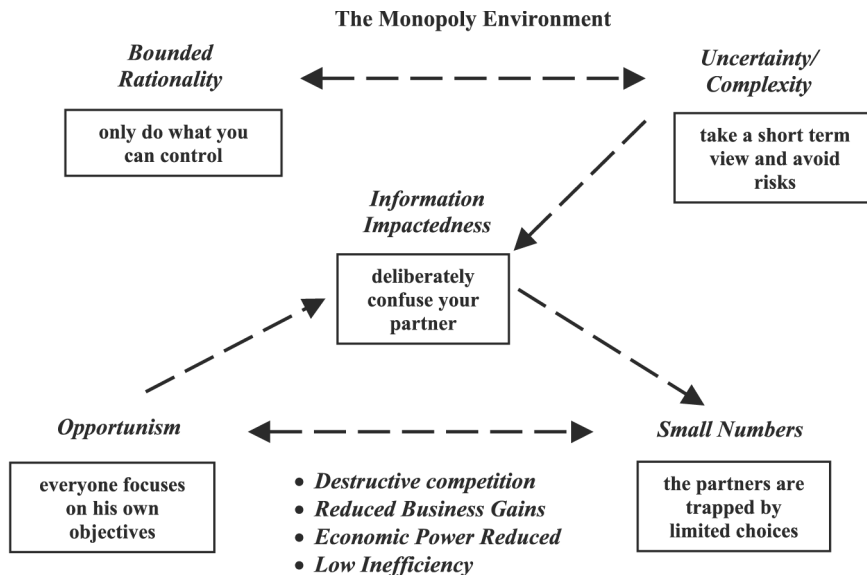


Figure 1.
Economic organisations failure framework

Source: Adapted from Williamson (1975)

of incentive to co-operate might help to perpetuate an adversarial relationship characterised by the features within the boxes of Figure 1 (Humphries and Wilding, 2000). In this situation the sides do the minimum necessary under the terms of the contract, they take short-term decisions which may cost more in the long run, because of lack of trust they are reluctant to share proprietary information and may even deliberately distort disclosures such as inflating cost figures in order to justify higher prices, they will opportunistically seek their own objectives rather than and at the expense of joint ones and finally, lack of trust will promote a reliance on the small print of the contract which limits flexibility and adds cost. Examples of these adverse features are certainly portrayed by the press as a tradition of UK defence procurement (Humphries and Wilding, 2000) although it should be noted that Williamson (1975) described the arrows in the framework as “influences within an environment” rather than causal interactions. We thus decided to use Figure 1 as a research model because it appeared to describe a recognisable view of the unusual dynamics within UK defence procurement relationships. The aim of our research was to test this model by seeking empirical evidence of strength and character of each of its five dimensions within the relationships examined.

In conclusion, there has been considerable transaction cost economics research which has investigated interorganisational relationships and public utility monopolies, but it has not been well-integrated and no study has utilised Williamson’s (1975) organisations failure framework in its entirety (Rindfleisch and Heide, 1997). This research therefore proposed to exploit this gap while examining UK defence procurement business relationships.

Methodology – measuring relationship characteristics

The research aims were thus to understand the relationship dynamics within long-term, collaborative businesses and to determine if relational success factors found within SCM such as trust and collaborative working arrangements were able to assist UK defence procurement managers to break out of the essentially negative situation represented by Figure 1. An exploratory research project was designed which used the key informant methods of surveys (600 staff questionnaires – five-point Likert scales) supported by 115 team-leader semi-structured interviews. It took a wide, cross-sectional perspective in order to make a statement about the outcomes of broadly comparable experiences using numerical supporting evidence. The questionnaire questions listed at Appendix 1 were selected from a pool based in the literature and grouped to correspond with the five theoretical framework dimensions. On the premise that UK defence supply chains might contain a spectrum of business relationships, the opposites of the negative definitions of Williamson’s (1975) framework were used to label the groups and questions with a positive orientation were used (validated by focus groups of practitioners during the research pilot phase).

A self-selected census (where the MoD managers chose the relationships to be researched) of 54 monopolistic, two-party relationships representing

£575.8m annual spend within the UK Defence Procurement Organisation (a 10 per cent sample by value) allowed the collection and analysis of large quantities of data to determine the range and strength of factors within the conceptual framework. It was acknowledged that such a sample could generate skewed results; however, follow-up analysis indicated a wide cross-section of the defence logistics organisation businesses in terms of size, spend and maturity participated which led us to believe that sample bias could be ignored. These businesses procured very high technology, military equipment spare parts, repair and engineering design services, and each team was composed of engineers, procurement, finance and commercial staffs. The project also took a relational perspective in identifying the main types of interaction and thus included data collection by qualitative methods in order to capture the richness of perceptions needed to gain insight into the subtleties and cultural depth of the business problem. The method employed was to survey as many and as wide a cross-section of the team members in each pair of businesses as possible and to record and manipulate the results in Microsoft Excel spreadsheets. Once the team-leaders had studied the results, each was interviewed separately to determine the perceived reasons for the statistical results. Over 700 key points were selected from the semi-structured interviews and stored in a Microsoft Access database and organised for analysis by theoretical dimension, supply chain characteristics and relationship. Special attention was devoted to providing feedback to the research participants by means of individual relationship reports as well as head office and Web-based summaries of the research findings. The production of independent, frank relationship information was highly valued by the organisations involved and in many cases relationship maintenance arrangements received a much-needed boost as a result.

An innovative data analysis approach was adopted which allowed the quantitative results to reveal the broad statistical trends, the qualitative results to reveal the richness of the business interactions, and a means of relating both back to the theoretical framework. This is shown in Appendix 2 where each dimension is first defined and its mean satisfaction score from the quantitative data is given. Then, within emergent qualitative data groupings, example semi-structured interview key points are used to illustrate the strengths of respondents' feelings. The next section provides conclusions from this data.

Relationship dynamics – findings

Dimension 1 – Relationship creativity

The overall mean satisfaction score of 59 per cent was generally supported by the tone of the qualitative data. In summary, successful relationships occurred when innovative contracts existed which reduced costs and promoted customer focus. Moreover, organisational arrangements that promoted consistency and performance improvements were also valued. However, it appeared that both deliberate and unconscious expediency often came into play that reduced relationship effectiveness (people have only so much capacity to rationalise

what is going on around them and they therefore naturally limit their performance to the adequate rather than the optimum (Simon, 1957)).

Dimension 2 – Relationship stability

Forward-looking, holistic partnering arrangements supported by customer-focussed, supply chain-bolstering activities were detected. With a mean satisfaction rating of 51 per cent, however, there were a similar number of instances of negative approaches such as insular practices, disruptive organisational changes and short-term strategies that promoted rather than countered the adverse effects of uncertainty and complexity (Williamson, 1975).

Dimension 3 – Communication

Although the mean satisfaction rating was only just above parity at 51 per cent, practitioners' comments were generally positive. Overall, the importance of supply chain communication was understood and efforts were being made to improve, but there were very few examples where full supply chain integration could be demonstrated. Some instances of information impactedness (the imbalance caused by selective information disclosures, and distortions which are difficult or expensive to verify at the time and which undermine the durability of contract arrangements (Williamson, 1975)) were detected and linked directly to a feeling of powerlessness due to the monopolistic situation. But, the practical difficulties of providing regular, management focus on order book performance through the use of joint performance measurement and service level systems appeared to be the key issues.

Dimension 4 – Relationship reliability

This dimension had the lowest mean satisfaction score of 49 per cent, which indicated that the practical implementation of SCM was considered to be difficult. A number of positive SCM aspects such as striving to improve quality ethos, service delivery and process improvement were observed in the data. However, environmental limitations on time, budget and investment, and product technical complexity and age had a strong bearing on the monopolistic business environment under scrutiny. It is evident that instances of opportunistic behaviour (a lack of candour or honesty and includes self-interest seeking with guile (Williamson, 1979)) were prompted as reactions to these features.

Dimension 5 – Relationship quality

This dimension achieved the highest mean satisfaction score of 66 per cent. However, the qualitative data gave a generally more pessimistic impression although managers generally felt that they had no option but to try to make the best of their situation. There appeared to be clear evidence of working together in the best interests of relationships, but in many cases the sides felt trapped and at the mercy of the other sides' budgetary, commercial and bureaucratic vagaries. In a small numbers situation, the parties could resort to countering

problematic behaviours, including lack of trust, by providing increasingly sophisticated controls that could, by reducing managers' freedom of action, precipitate a further reduction of trust and a negative cycle of reactions (Williamson, 1979).

Discussion of results

Contrary to expectations, a diversity of positive, business-driven behaviours as well as more adverse monopolistic dynamics were present within the UK Defence Procurement environment. The mean satisfaction scores by dimension from the quantitative data findings shown in Figure 2 usefully revealed that the essentially negative organisations failure framework was not so in practice, with an overall success rating of 57 per cent.

These findings are borne out by the data described in the previous section. Difficulties in achieving effective SCM implementation could be traced to the normal, commercial difficulties surrounding order book performance, joint objectives and service level systems framework (Humphries and Wilding, 2004; Lamming, 1993; Tompkins, 2000). Environmental problems such as old products, obsolescence, staff and organisational upheavals, poor end-customer visibility and lack of investment in modern procedures and systems seemed to accentuate managers' frustrations due to lack of freedom of action and promoted the relationship negativity implied by the theoretical framework. As predicted by the model, lack of investment in specific assets such as workforce stability and product/process development, the use of inadequate performance

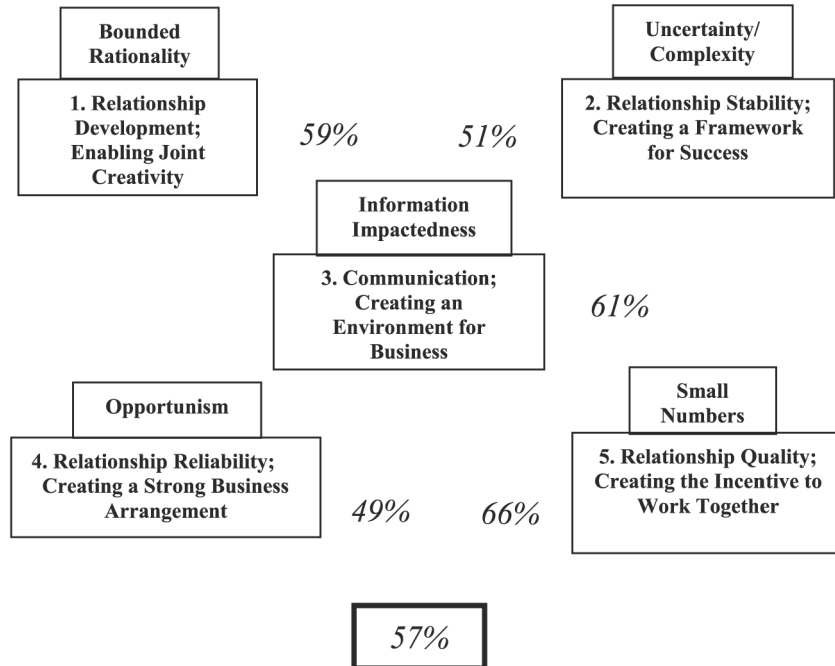


Figure 2.
Overall conceptual
framework results by
dimension

measures, opportunistically providing poor goods and services, and using proprietary information as a weapon, reduced the chances of achieving interdependence and equitable outcomes. On the other hand, despite the adverse monopolistic influences, strong counterbalancing, positive business drivers were able to produce examples of relationship-building, specific investments, co-operative behaviour, open communications and a desire to reduce the burden of governance through more equitable, long-term arrangements.

Although the research was designed to take an aggregate view of the data and did not differentiate between the views of the MoD and industry respondents, it was noticeable that qualitative opinions were reasonably balanced. However, quantitatively MoD staffs were less optimistic (59 per cent) than industry (67 per cent). Statistical analysis indicates that this difference is not significant with a high correlation factor of 0.928 (Sapsford, 1999). From the data collected no explanation could be found for the difference in perception but further research into the phenomenon might prove interesting.

This research aimed to provide an understanding of the supply chain relationship dynamics within long-term, collaborative businesses of the type found within UK defence procurement, and to provide managers in this environment with some pointers on successful partnering within monopolistic businesses. The findings have exposed the reasons for tensions within the MoD/industry relationships and described the success factors that appear to prevail in the face of the potential difficulties described in Figure 1. Some advice for practitioners is given later, but next we describe the implications for theory.

Implications for theory

Williamson's (1975) organisations failure framework was selected as the theoretical model because it appeared to provide a means of examining the relational dynamics within a sustained monopolistic business. Because the business focus was collaborative supply chain management, the relational aspects of SCM were used as the theoretical field with which to expose the interactions between the pairs of business partners using an exploratory research methodology. From the emergent groupings of qualitative data reinforced by the quantitative satisfaction ratings revealed by the questionnaires, it was found that despite the forced partnership monopolistic situation, the process efficiency aims of SCM as found in "normal" markets were present. Also, although considerable efforts were being devoted to improving SCM performance, in concert with Spekman *et al.*'s (1998) commercial sector findings, successfully implemented examples were difficult to achieve. However, negative behaviour symptomatic of the theoretical monopoly environment was also prominent. This included evidence of managers' frustration at the lack of freedom of action where relationship "carelessness" destroyed trust (Macbeth and Ferguson, 1994). Lambert *et al.*'s (1996) partnering process model demonstrates the important features that

impact on partners when establishing and maintaining a partnership and describes a continuous improvement approach with the reinforcement of success. Under monopolistic conditions the partners have no choice in the arrangement and, depending on the degree of negativity affecting the business drivers for co-operation and the facilitators deployed to operationalise the relationship, will, through a negative feedback loop, potentially generate a self-reinforcing, low quality relationship (Humphries and Wilding, 2004). We conclude that these findings support Williamson's (1975) concepts when applied to sustained, public sector, monopolistic, business relationships and moreover, provide additional evidence that builds on Spekman *et al.*'s (1998) work in addressing the reasons why SCM relationships are difficult to implement and sustain.

Advice for practitioners

As mentioned in the introduction to this paper, UK defence procurement relationships are extremely important to both national and industrial policies such that any improvements in performance is likely to be extremely beneficial to all concerned. This research has taken an innovative approach to the analysis of this important situation and as a result has highlighted a primary lesson for managers operating within these sustained monopolies. If they are to achieve the Government's demand for improved value for money in UK defence spending through partnering relationships with industry, there is a prime need to accept that the monopoly environment will inevitably reduce relationship quality due to the limited availability of options for action. Allowing frustration and generating negative behaviours to enter a negative cycle only results in poor returns for both sides. On the contrary, it is essential to build an inventory of environmental problems that are normally considered to be "unavoidable features of the business" and jointly seek innovative ways of dealing with them. Synchronised objectives, pursuing joint approaches to service and product delivery, lowering costs and risks and promoting measures to support the growth of trust appear to be the best ways of mitigating the negative influences of the endemic monopoly situation on supply chain relationships. Finally, the research has proved the benefit of an independent, third party review of supply chain relationship development and suggests that periodic repeats would allow areas for joint management attention to be targeted.

Further research opportunities

This research has, for the first time, achieved a high level, cross-relationship (UK MoD/industry) perspective of a significant sample of sustained monopoly businesses and this supply chain activity continues to struggle to achieve its objectives in a market that becomes more and more restricted. Further research is necessary to build on our initial, exploratory efforts in order to probe more deeply into an extremely interesting area. It would be useful to repeat the approach in order to obtain a longitudinal view of the relationships to determine what change is occurring over time and why, and provide more

detailed understanding of the organisational and personal interactions. Such an approach could be aimed at providing more specific improvement programmes and be targeted both tactically and strategically. Traditionally, economics has taken a rather limited view of monopoly in areas such as the governance arrangements for public utilities or the application of anti-trust legislation (Rindfleisch and Heide, 1997). This research echoes Parker and Hartley's (1997) conclusions that economists might also find the examination of "public interest" monopolies interesting. Finally, there are possible similarities between the UK defence monopolistic supply chain relationships and long term collaborations in the private sector. Not only would the repeat of our research approach in the commercial arena, both nationally and internationally, triangulate our findings, but it might also offer researchers another way of cross-tabulating their own projects. It should be emphasised that none of these opportunities for research should be viewed in isolation; many of them overlap and converge to offer the chance to carry out integrated research programmes.

Conclusion

The literature suggests that the little known about the relationship dynamics within monopolies presupposes negative outcomes. However, this research has shown that this is not the case, and that within the relationships examined a spectrum of positive and negative results were found. This is especially interesting because it demonstrates that supply chain management factors, as described in "normal" markets literature, are equally important success factors in monopolistic business. The research findings thus shed new light in an area that has received little attention by management researchers (Palmer, 2001, Parker and Hartley, 1997). They also provide valuable practical advice to managers and offer academics a potentially interesting agenda for future research to gain extended perspectives of long-term, collaborative, supply chain relationships.

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Appendix 1. Questionnaire dimensions and questions

- (1) *Bounded rationality – creativity*: promoting quality, innovation and long-term approach by encouraging high performance.
 - a. The relationship encourages the achievement of high performance by both parties, i.e. reliable equipment, on-time delivery, good forecasts.
 - b. The relationship encourages us to be innovative in the way we do business.
 - c. Performance measurement is used to raise standards.
 - d. Disputes and problems are resolved: "quickly".
 - e. Disputes and problems are resolved: "fairly".
 - f. The other party is reliable and consistent in dealing with us.
 - g. The other party is dedicated to making our business a success.
 - h. When an unexpected problem arises, both parties would rather work out a solution than hold each other to the original contract terms.
- (2) *Uncertainty/complexity – stability*: synchronisation of objectives and confidence building.
 - a. The other party displays a sound, strategic understanding of our business.
 - b. The objectives of both parties are clearly stated.
 - c. The objectives of both parties are fully compatible.
 - d. Both parties co-operate wholeheartedly.
 - e. The relationship provides a dynamic business environment within which both parties can seek increasing rewards.
 - f. I have complete confidence in the intentions of the other party.
- (3) *Information impactedness – communication*: shared data environment, openness, common performance measures, frequent interaction.
 - a. Where the other party has proprietary information that could improve the performance of the joint business, it is freely available.
 - b. We would welcome a shared data environment where planning, technical and pricing information are made freely available.
 - c. We understand the information requirements of all participants in the support chain from sub-contractors to end-user.
 - d. Exchange of information in this relationship takes place frequently and informally – not just according to specified agreement.
 - e. Objective performance measurement is an important part of this relationship.

- f. We are aware of the performance requirements for all participants in the support chain from sub-contractors to end-user.
 - g. We provide the other party with regular information including long-range forecasts to enable him to do his business better.
- (4) *Opportunism – reliability*: concentrating on service and product delivery, lowering joint costs and risks, building up trust.
- a. The quality of the contract outputs, i.e. spares/repairs/services, is entirely satisfactory.
 - b. The quality of service delivery ie. delivery times, billing, payment, is entirely satisfactory.
 - c. The relationship is characterised by a continually improving quality ethos.
 - d. Problems are solved in a joint, open, constructive manner.
 - e. Such is the goodwill in the relationship, the other party would willingly put himself out to adapt to our changing requirements.
 - f. We trust the other party to act in our best interests.
 - g. The responsibility for making sure the relationship works is shared jointly.
 - h. The other party provides us with useful cost reduction and quality improvement ideas.
 - i. The other party is always totally open and honest with us.
 - j. The other party always does what he says he will do.
- (5) *Small numbers – quality*: creating a win-win relationship in which each side is delighted to be a part.
- a. The gains from this relationship are equally shared between both parties.
 - b. We do not feel imprisoned within the current relationship.
 - c. We are willing to invest more, i.e. money, time, information, effort, in the current relationship.
 - d. We are happy that our future is bound to the success of our relationship partner.
 - e. We feel totally committed to this relationship.
 - f. The other party is genuinely concerned that our business succeeds.
 - g. Both sides are working to improve this relationship.

Appendix 2

Dimension	Definition	Emergent grouping	Example practitioner comments
1 – Relationship creativity (59 per cent)	Promoting quality, innovation and a long-term approach by encouraging high performance	Flexible commercial approach based on framework contracting planning and control	<p>“Now we have a partnering arrangement around a good framework contract we just concentrate on the customer – we no longer refer to the small print”</p> <p>“Enabling contracts reduce admin costs by freeing us from frequent competitions as long as the company continues to demonstrate it has given us best value for money”</p> <p>“We used to keep a pool of items to feed into repair. With our new partnering arrangement we track individual items and have significantly cut down on their number”</p> <p>“The benefits of the partnering arrangement are we are ‘future-proofed’, uncertainty is removed, we can plan and, most importantly, we can really focus on the customer”</p> <p>“This is real support chain management; the mechanism is invisible to the end customer”</p> <p>“Industry is still rooted in the past; it is not yet prepared for long-term service provision”</p> <p>“My team is only 60 strong and small is beautiful. We seem to be able to do more with less. We concentrate on essentials; the nice to do only encourage growth in overheads”</p> <p>“The company is dealing with an old product, the spares are in short-supply, there are obsolescence problems and on top of that, its organisation is poorly focussed”</p> <p>“We now sit down with the customer to write his post design services requirements. This saves months of bureaucracy”</p>

(continued)

Table AI.
Qualitative data analysis examples

Dimension	Definition	Emergent grouping	Example practitioner comments
2 – Relationship stability (51 per cent)	The synchronisation of objectives and confidence building	Customer focus	<p>“The relationship between our people is excellent but frequent staff changes in their team disrupt our working arrangements and incur costs”</p> <p>“We organised a training day on the Ministry of Defence’s site to educate their staff about the company and its products. Knowledge about each other’s business is important to our professional relationship”</p> <p>“They don’t seem to understand we have lead times; they often want it ‘tomorrow’”</p>
		Commercial understanding	<p>“We aim for a 10, 12, 15 or even 30 year contract. This fosters a long-term ethos, cuts the costs of frequent renegotiations and allows the firm to plan and resource”</p> <p>“We gave them a proper solution. They said it was too expensive. We cut back and now we are all suffering”</p>
		Co-operation	<p>“They are always thinking ahead; wanting to know our budget over the next four years, our equipment plans, what they can do to enhance its performance, and exploring how they can offer better support services”</p> <p>“All stakeholders were involved in the project including the end-customers who helped design the performance targets. The same people are now involved in implementation”</p> <p>“I feel really let down that the current review by the Ministry of Defence into a new project has cut us out and ignored our long experience”</p>

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Dimension	Definition	Emergent grouping	Example practitioner comments
3 – Communication (51 per cent)	Seeking a shared data environment, openness, common performance measures and frequent interaction	Management communication Working level communication Joint supply chain planning	<p>“The commercial side is the weakest. They still have traditional views. We put in a lot of effort to work with them but they are unable to change”</p> <p>“Quarterly review meetings where outstanding orders are discussed have led to much improved product availability”</p> <p>“People do talk more freely and there is a genuine desire to solve problems in an ‘open manner’ keep the team focussed”</p> <p>“All support chain parties, including the end customer, attend planning meetings to discuss requirements, pool knowledge and resolve problems”</p> <p>“We have simple, obvious, open performance measures. Every week the firm sends a statement of work achieved, problems encountered and forecasts. We provide them with consumption data. Achievements are open for all to see”</p> <p>“We are starting to face up to performance issues at our regular meetings. In the past mutual defensiveness has got in the way of making improvements. This is a very hard area to tackle”</p>
4 – Relationship reliability (49 per cent)	Concentrating on service and product delivery, lowering joint costs and risks, building up trust	Quality and continuous improvement Focussing on product and service delivery	<p>“Quality issues are ignored by the supplier. We have offered to help but it was refused”</p> <p>“We feel that we have to keep the pressure on price and delivery to keep the firm on its toes. We feel we are paying a high price for mediocre performance”</p>

(continued)

Table AI.

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Dimension	Definition	Emergent grouping	Example practitioner comments
5 – Relationship quality (66 per cent)	Creating a win-win relationship in which each side is delighted to be a part	<p>Business practices</p> <p>Devoting time and resources to relationship development</p> <p>Understanding the difficulties of doing business in defence procurement and the level of equity in the partnership</p>	<p>“It’s a problem maintaining 30-year old equipment. It’s used and abused and we have difficulty finding people and sub-contractors with the necessary skills”</p> <p>“They have taken on additional tasks without the resources. They now don’t have the staff to chase their sub-contractors who let them down”</p> <p>“We are determined to support this ageing weapon system even though it does not bear a good return to industry”</p> <p>“There is a bit of the old ‘cost-plus, bowler-hatted’ attitude on both sides that we must work together to overcome”</p> <p>“Our fear is the feast and famine situation of defence spending. There are times when we must stop work, lay off experienced staff and then race to get back going again. I worry that we cannot respond fast enough and that this adversely affects customer satisfaction”</p> <p>“Their worry is that because we are their single source and have changed hands a couple of times in the last ten years, we might go out of business and leave them high and dry”</p>