

Richard Green

*Offshore Management Centre, Aberdeen
Business School, The Robert Gordon
University, Aberdeen*

William Keogh

*Centre for Entrepreneurship and SMEs,
Aberdeen Business School, The Robert Gordon
University, Aberdeen*

Five years of collaboration in the UK upstream oil and gas industry

- *Many collaborative relationships (partnering and alliancing) between customers and contractors in the UK upstream oil and gas industry were formed in the five years up to 1998.*
 - *The content of 63 practitioner papers from six specialist commercial conferences on partnering and alliancing (three from 1993/94 and three from 1997/98) has been analysed to investigate whether the industry's thinking has changed over the period.*
 - *Overall, the most frequently occurring concepts are those which appear in the general literature on collaborative relationships. There was not a marked difference between the concepts used in the early conferences and those used in the later ones.*
 - *The early papers did show a slightly heavier emphasis on concepts that could be said to be theoretical, whereas the later papers had slightly more emphasis on concepts that could be attributed to experience.*
- Copyright © 2000 John Wiley & Sons, Ltd.*

Introduction

This paper considers the evolution of collaborative relationships (partnering and alliances) between companies in the UK's upstream (exploration and production) oil and gas industry since 1992/93. From that time, the industry realized that adversarial relationships not only added to its costs but also threatened its continued existence.

In the years after 1993 there have been many examples of close-working relationships between operators and contractors in major projects and in ongoing maintenance activities. The BP Andrew field development project as described by Knott (1996) is one such example. Some of the relationships appear to be very successful and others have not delivered the expected benefits (see Bower and Keogh, 1997a and 1997b and Crabtree *et al.* 1997). There is now a body of hard experience of what makes for success in such relationships, and it appears that this style of working is no longer regarded as novel.

At the end of 1998, the dramatic fall in oil prices placed severe cost reduction pressures on the industry and triggered a series of mergers, acquisitions and internal restructuring by

The dramatic fall in oil prices triggered a series of mergers, acquisitions and internal restructuring

companies. Since that time there appears to be less emphasis on partnering and alliances in the industry, but collaboration across the whole supply chain is under active discussion (CRINE Network, 1999). The recommendations from a joint task force between government and industry in 1999 led to the creation of LOGIC (Leading Oil and Gas Industry Competitiveness) to promote collaboration across the industry (Oil and Gas Industry Task Force, 1999).

This paper summarizes the business environ-

ment of the upstream oil and gas industry, and examines the nature of collaborative or long term, relationships between companies. The content of a set of papers from commercial conferences on 'Partnering and Alliancing in the Oil Industry (1993 to 1998) is then used to detect how the industry's 'thinking' had evolved until mid 1998.

The UK upstream oil and gas industry

Oil and gas has been produced from the UK's reservoirs since 1967, and although the industry is past its peak, it remains an important contributor to the UK's economy. The DTI 'Brown Book' (Department of Trade and Industry, 1999) reports that the oil and gas sector contributed £3 billion to the balance of payments in 1998 and Government revenue from the industry was approximately £2.6 billion in 1998/99. In addition, the UK oil and gas industry is currently estimated to be responsible for the direct and indirect employment of over 300,000 people in the UK (Department of Trade and Industry, 1999).

Offshore oil and gas is produced from wells drilled from seabed to reservoir. Before transport to shore, by pipeline or by ship, the oil and gas is processed on production platforms (which stand on the seabed or float on the sea). Production platforms are complex installations which need continuous maintenance and modification, and which require a large range of services including engineering, painting, diving, catering and medical support. The engineering materials needed for operation of the platform, and food and materials needed by the people working there, are supplied by boat. Helicopters transport people to and from the platforms. Operating and maintenance expenditure by the industry in 1998 is reported as £4.2 billion (Department of Trade and Industry, 1999).

The development of a new oil and gas field is a major engineering project which can cost hundreds of £ millions and which employs many hundreds of people in design, construction and commissioning over a period of

three to five years. The drilling of exploration or appraisal wells in the search for new oil and gas fields is again a high cost operation. Drilling barges are also complex structures, which need to be maintained and supplied. Investment in exploration, appraisal and new installations was £5.1 billion in 1998, which is 17% of total UK industrial investment (Department of Trade and Industry, 1999).

The ultimate customers for goods and services in the industry are the 25 or so operating companies which own and produce the oil and gas. They tend to be large multi-nationals, such as BP, Shell or Conoco, and they are supported by around 50 major contracting companies, for example the Halliburton Group. The industry is further supported by an estimated 2000 companies (contractors and suppliers) whose size varies from large to very small, and which supply a multitude of goods and services.

The research reported in this paper concerns the relationships between the operating companies and the contractors and suppliers which support them in the design, development and maintenance of oil and gas production installations.

Overview of collaboration (partnering and alliancing)

Evolution

The UK upstream oil and gas industry (the industry) faced a crisis in the early 1990s (see Woolfson *et al.*, 1997, p. 302). For a variety of historical reasons, its costs were high and rising, and at the same time the projected revenues from new and existing fields were falling. At the end of 1993, the summary report from the cross-industry CRINE (Cost Reduction Initiative for the New Era) initiative stated that:

North Sea development costs can be in the order of 4 to 6 times greater than their lower cost counterparts in other oil and gas provinces, such as the Gulf of Mexico and the Pacific Rim ... (UKOOA, 1994).

Studies by Kemp (1993 and 1994) suggested that, by reducing its costs, the industry would increase its size substantially and extend its life by many years.

One of the industry's reactions to rising costs was to realize that the traditional adversarial relationships between companies, which had evolved since the 1970s, were a source of inefficiency and high costs. There was a recognition that by working together the UK industry could lower its costs and increase its chances of long term survival. The first CRINE report (UKOOA, 1994) suggested that:

A shift is required, not only in the way the industry conceives, designs and builds hardware, but just as importantly, in the way the industry interacts as a whole ... The culture envisioned by CRINE is one characterised by teamwork and openness. It is one where the full potential of people working together towards common objectives can be realised and all parties have the opportunity to prosper.

It is interesting to note that at about the same time the UK's onshore construction industry was also beginning to recognize the drawbacks of adversarial relationships (Latham, 1994).

The adoption of more collaborative styles of working by the oil and gas industry accelerated after 1992, and by 1998, such relationships were widely recognized and accepted. 'Partnering', 'alliancing', 'performance relationships' and 'collaborative contracting' are some of the terms which have been used to describe the changed relationships. In the early years, the move towards these relationships was led by BP Exploration and Shell Expro, who let some massive refurbishment contracts in the period up to 1994 (Woolfson *et al.*, 1997).

After five or six years' experience of partnering and alliancing, the majority of the oil and gas companies and their contractors now embrace, at least partially, a more collaborative style of working. Several examples of successful projects, based on collaboration, are available, e.g. the BP Andrew field development project described by Knott (1996). In 1997, a survey of the market for small and medium enterprises in

the UK oil industry concluded that 'Alliancing is here to stay and is broadly welcomed by operators and contractors' (Segal, Quince Wick-

*Alliancing is here to stay and
is broadly welcomed by
operators and contractors*

stead Ltd, 1997). There was also a growing recognition that the success of the relationships depends on the beliefs and behaviours of the people involved rather than on what is written in the formal contract.

The low oil prices at the end of 1998 put further strain on the industry. Contractors were faced with demands for more reductions in costs, and it is noticeable that the industry no longer appears to emphasize the formation of alliances. Nevertheless, in 1999 an industry-wide study of supply chain management (CRINE Network, 1999) still concluded that one of the issues which is 'currently preventing supply chains from operating effectively' is that 'few long term strategies are in place for collaboration between supply chain participants'. The study goes on to recommend that 'Customers should be prepared to invest more time in developing and maintaining relationships with providers of strategic and critical goods and services.' Thus the industry still appears to set much store on maintaining collaborative relationships, and a new organization 'LOGIC' was set up at the end of 1999 'to deliver a £1 billion improvement in performance in the North Sea ... by getting better at collaboration and co-operation' (Oil and Gas Industry Task Force, 1999).

Characteristics of collaborative relationships

Green (1997) describes some of the characteristics of collaborative working between customers (the oil companies) and their contractors in the upstream oil and gas industry (see Box 1).

Success factors

Many authors have discussed factors that encourage success in alliances and collaborative relationships. Facilitators of these relationships seem to agree that there is no formula that can be applied to guarantee a successful relationship. Each relationship is different because it is made up of different people in a different environment. Cohen (1996) suggests that, '... the very notion of a formula contradicts the type of creativity and invention that we have already seen is characteristic of successful alliances'. Nevertheless, there appear to be some factors that can be viewed as necessary for success, even if they are not sufficient, and the following list is a distillation of these factors that are often mentioned in the context of alliances in the UK upstream oil and gas industry.

- Commitment and example from senior management. Senior management of all the companies involved in the relationship must believe in the value of the relationship and be prepared to do whatever is necessary to ensure its success. Macbeth and Ferguson (1994) suggest that '... the development of collaborative relationships often requires a fundamental shift in attitude and behaviour, and the drive for this change must come from the top down'. Spekman *et al.* (1996) add, 'Successful alliances ... must have the blessing and support of senior management'.
- Clear objectives, understood and accepted by everyone. The objectives of the relationship need to be understood by everyone involved, and they should be restated frequently. 'All alliance participants must understand why the alliance makes sense and how it fits into the larger set of goals and objectives held by the firm' (Spekman *et al.*, 1996).
- Understanding where the 'win win' comes from. An essential feature of a collaborative relationship is that it should represent a potential 'win' for all the companies involved. It is very important that people are aware, and understand, how achievement of shared objectives will generate the

Box 1. Characteristics of collaborative relationships between oil companies and their contractors.

- The relationship is for a long term (five years or more).
- Contractors are selected more on the values, policies and behaviours of their people rather than on costs.
- There is usually a single integrated team of people selected from the member companies on the basis of 'best person for the job'.
- A great deal of effort is put into building the joint team and helping them to build their shared vision and objectives. External facilitators often play a major part in the team-building process and in helping the team to develop new ways of working to generate improved performance.
- There is much emphasis on the contribution to the end result by all the companies, rather than on a blinkered view of the activity of each company on its own.
- There is emphasis on early involvement of all the groups who can influence the final outcome. For instance, it is now common practice to involve the fabrication companies, commissioning companies and the operations group at the design stage of a project. Changes at the design stage cost relatively little but can have large effects on the final outcome.
- The aim is that all parties should benefit by collaborating and by concentrating on achievement of the end result. The customer gains by having his work completed at reduced cost, or in less time, and the contractor gains from increased percent profit. This 'commercial alignment' is often achieved through sharing of rewards for improved performance or penalties for reduced performance. 'Risk-reward' structures vary, as described by Farrell (1995) or Gedik (1994), but many involve the sharing of savings or over-runs from some agreed target cost. There are often some minimum conditions of satisfaction which must be achieved by the project before contractors qualify for a share of reduced costs, and a cap on the amount of cost over-run which contractors are expected to share. Some attempts have been made to link receipt of rewards by contractors to satisfactory performance of systems in the early years of their life.

'win' for their company. Such an understanding will influence people's behaviour when they deal with their colleagues from the other companies. Vollman and Cordon (1998) speak of 'a focus on optimising the whole of the (supply) chain — not benefits to one partner achieved at the expense of another' and 'a clear distinction between a focus on reducing costs ... but not on reducing the margins of the partners'. Car-

lisle and Parker (1989) emphasize that fairness pays off in the longer term. 'There is no long-term advantage to any customer in the chain from keeping their supplier margins below a level which meets the supplier's investment/return needs'.

- Stretch objectives. Alliances that appear to have achieved extraordinary performance also appear to have had very aggressive 'stretch objectives' to aim at, which rep-

resent a level of performance 'beyond people's wildest dreams'. Knott (1996) quotes the BP Andrew Project Manager. 'The key difference was the setting of stretched targets for Andrew — without these we would not have achieved so much.'

- Change of beliefs, attitudes and behaviours. A change of attitude and behaviour is required by people at all levels, particularly by senior and middle managers. Attitudes and behaviour spring from beliefs about what is possible, openness to new ideas and a willingness to try new courses of action. Lamming (1993), when discussing the ideas of lean supply, suggests,

... a fundamental shift in attitude is required ... for customers the new attitude must remove the traditional obsession with ownership of the process and short-term cost savings through coercion.

Carlisle and Parker (1989) describe 'letting go the rock' as 'letting go the old familiar, and no longer effective habits, to take up new, unfamiliar, but survival-dependent ways of managing ...'.

- No-blame culture. Exception that error on non-achievement of objectives will lead to a search for a company or a person to blame tends to inhibit willingness to try new courses of action or openness to new ideas. Instead an emphasis on forgiveness, not blame, and on joint solution of problems is to be encouraged. Spekman *et al.* (1996) describe how '*Successful alliances implement blameless review processes ...*'.

*Successful alliances
implement blameless review
processes*

Carlisle and Parker (1989) emphasize that

Supplier problems must be seen as joint responsibilities ... This requires that

resources ... must be brought to bear on 'our' problems in a way which produces the most efficient use of 'our' resources.

- Integrated team — no duplication of roles. The members of the team set up between collaborating companies should be chosen on the basis of 'best person for the job', rather than the company to which they belong. It is also highly desirable that all the members of the team are located in the same office so that 'face to face' communication is very easy. Knott (1996) describes how, in the BP Andrew project,

Adversity, contractual conflict and a 'who's to blame' culture—the hallmarks of traditional working—were pronounced unwelcome. A single team aligned to a common business goal was advocated as an alternative that could deliver a satisfactory result. ... The drive was to create a 'total team' where everyone was valued equally, dispelling the 'team and us' viewpoint.

- Frequent and open communication. Many writers emphasize the role of communication in effective relationships. There should be no barriers to free flow of information. Anyone should be able to obtain the information they need for their work, quickly and without obstruction. Ellram and Eddis (1996) suggest that 'open communication avoids misdirection and bolsters effective working relationships' and reports that 'Poor communication (is) ranked as the most important cause of partnering failure for both groups (buyers and suppliers)'.
- Training in collaboration and in developing new ideas. People who are use to conventional relationships cannot be expected immediately to change to collaborative working. They will need help to understand what behaviours are required and to change some of the beliefs that constrain their actions. Carlisle and Parker (1989) suggest, 'There is ample history to

indicate that such multidiscipline groups, once formed, are very tender organisms and require very special care and feeding to survive their infancy.' Many successful collaborative relationships appear to use an external facilitator to assist with the processes of building shared objectives and of developing trusting relationships. Facilitators can help team members to identify and modify beliefs and behaviours that are barriers to new ways of working. The continuing involvement of a good facilitator after the initial phase can be a powerful aid to improved performance. Knott (1996) describes how, in the BP Andrew project,

External coaching and guidance were also necessary to assist the team to explore its potential, and to help individuals maintain the stamina for continuously setting new targets. ... a programme of education was ongoing. ... consultants experienced in assisting corporations to achieve performance breakthroughs, had been engaged ... to support the Andrew team in its commitment to achieving an extraordinary result.

Has the industry's view of partnering and alliancing changed?

Without longitudinal data from extensive surveys it is difficult to gauge how the industry's thinking has changed over the years since ideas of collaborative working were introduced. Key questions arise such as: Is everyone's interpretation of what is meant by partnering and alliancing the same? Are such ideas more widely accepted than they used to be? Have people's views of the critical success factors changed over the period? As yet, few academic papers have been published which relate specifically to the UK's upstream oil and gas industry, and most literature that has emerged has come from practitioners.

Sources of data

One available source of data is the set of papers given at a series of commercial conferences on

'partnering and alliancing in the oil industry' which have been run every year in Aberdeen and/or London since 1993. Even though the authors of these papers may wish to present their activities in the most favourable light, the papers do give a valuable insight into their view of the characteristics of a collaborative relationship and of the critical success factors.

Fifteen conferences, for which proceedings are to hand, have been identified and they offer 139 papers by 119 speakers. Papers from six of the conferences have been reviewed (two from 1993, and one from 1994, two from 1997 and one from 1998) to investigate whether any change in emphasis can be detected between the start and end of the period. For ease of reference, the 1993 and 1994 papers are referred to as 'early papers', and those from 1997 and 1998 as 'late papers'. Seventy nine papers were presented at the six conferences, and 63 of them were deemed to be relevant, in that the authors had an active involvement with the industry and they provided information on the characteristics of collaborative relationships, critical success factors, barriers to success or legal issues. The titles of the papers reviewed are listed in Appendix 1.

Table 1 shows that contractors and consultants provided the majority of the papers in both early and late periods but that more papers came from customers in the later period.

Eleven of the early papers and 13 of the late papers were based on case studies of projects, as listed in Table 2.

By inspection, 11 of the early papers and 24 of the late papers were deemed to be based on 'hard experience' of relationships that had occurred, as opposed to a description of future intentions. Concerns about legal issues of collaborative working, and about the effect of European procurement regulations appear in

Table 1. Author company types

Company type	Early papers	Late papers	Total
Customer	7	14	21
Contractor or consultant	22	20	42
Total	29	34	63

Table 2. Projects referenced

Project	Early papers	Late papers
AGIP Aquila development (FPSO)		1
Amerada Hess Scott development	1	
ARCO Trent and Tyne development		1
BG Armada development		2
BP Andrew Operational Alliance		1
BP Dalmeny metering	1	
BP Forties Engineering	1	
BP Forties Well Construction Alliance	1	
BP Hyde platform	1	
BP Hyde Well construction	2	
Britannia pre-drilling		1
Chevron Alba Development	1	
Conoco: Expansion of LOGGS terminal	1	
Elgin Processes, Utilities and Quarters Platform		1
ETAP facilities alliancecz		1
Mobil operations support group for Beryl and SNS gas		1
NAM Golden Opportunity Well Construction Alliance	1	
Phillips Judy Joanne development		2
Shell MMSC	1	
Texaco Erskine development		1
Wandoo platform alliance		1
No project	19	21
Total	30	34

Note: one early paper referred to two projects

both early and late papers. There is slightly less emphasis on European procurement regulations in the later papers, which may indicate that the industry is now more comfortable working with the regulations than it was in 1993/94.

Three 'anti-alliance' papers emerge in the later conferences, two of which concern a case study where extraordinary performance was achieved by collaboration, but without the special efforts which normally appear to be required to develop relationships and integrated teams, etc. (Shepherd, 1997, 1998). The third paper attacks long-term alliances as being harmful to smaller companies and to the growth of innovation (D'Anocona, 1997).

Content analysis

The aim of the analysis was to extract the content of the papers on:

- characteristics of partnering and alliancing

- critical success factors, or barriers to success
- legal aspects

A series of 'concepts' were coded to each paper. The concepts were based on a previously generated unpublished list of key statements about partnering and alliancing, and additional concepts were created as the need arose. For ease of analysis, information on conferences, papers and the assigned concepts was stored on a database. The concepts themselves were categorized, to aid analysis. In all, 239 concepts were used to capture the content of the 63 papers, and 980 concept-paper combinations were created.

The occurrence of the concepts in both the early and late papers was counted, and 77 concepts were used more than three times. Table 3 shows 29 concepts, sorted by category, which occur more than ten times.

These high scoring concepts reflect many of the ideas that would be expected from a review of the literature and which have been discussed earlier in this paper. Long term relationships with shared objectives, integrated teams, change of beliefs, team building, the crucial role of management and the nature of the mutual benefit or 'win-win' are all ideas which appear in the literature.

Changes between early and late papers

To assess whether the views of the industry have changed, the difference between the number of times each concept occurs in the 'early' and 'late' papers has been calculated. The distribution of differences appears symmetrical, with a mean difference of -0.18 and a standard deviation of 2.18. Eighty nine per cent of the differences lie between -3 and $+3$.

On this basis, it can be suggested that the majority of the content is common to both early and late papers, and there has been little evolution of the industry's thinking.

To detect some signs of evolution in thinking, the concepts with fairly large differences (more than two standard deviations from the mean) in occurrence between early and late papers were examined.

Table 3. Concepts occurring ten or more times

Category	Concept	Count
General	Shared visions and objectives	37
	Relationships tend to be for a long term	14
	A short document describes the relationship, the desired behaviours and the risk reward structures	10
Teams	Integrated teams	27
	Creating effective teams	17
	Team-building activities	16
	Beliefs, attitude and behaviour underpin the relationships and high performance	14
	People must change their beliefs—leads to changed behaviour	13
	Involve ALL the groups which can influence the outcome	14
	Open communications, at all levels, with no hidden agendas	27
	High levels of trust	23
	There is commitment to each other's success	11
	Duplication of roles and work is eliminated	11
	It is important that changed roles, responsibilities, and accountabilities are clearly defined and understood	11
	'Stretch targets' lead to extraordinary performance	11
	Team member must understand the needs of the other companies and team members	10
Management	In selecting partners, attitudes and behaviours are more important than tendered costs	10
	Senior management must provide the drive	21
	Senior management plays a crucial role	12
Performance	Steering group made up of senior managers from the member companies	12
	Agreed performance measures are required	19
Win-win	An environment of continuous improvement	17
	Risk reward structure enables commercial alignment	19
	Customer and contractors share gains from improved performance, but also share the losses if things go wrong	14
	Contractors' profits can depend on savings made from an agreed target or from achievement of a range of performance metrics	13
	All companies in a collaborative relationship must feel happy with the relationship and with the outcomes	13
	Customers gain access to the contractors' experience and expertise	13
	Contractors gain long term security of work	11
Customers gain reduced total cost of the job	10	

Table 4 shows concepts that occur more often in later papers and which could be claimed to arise from experience of managing actual relationships. Thus experience reinforces the view that there is no formula which guarantees success, but that even in a collaborative relationship it is still necessary to have good systems and procedures to ensure

In a collaborative relationship it is still necessary to have good systems and procedures

that appropriate tasks are completed. The importance of the customer being part of the relationship rather than keeping the contractors at arms-length is given more emphasis in later papers, together with the idea of a short alliance agreement for governing a collaborative relationship. The idea that a risk-reward structure increases commercial alignment between companies also features more strongly. When considering issues which affect the performance of teams, the importance of clear understanding of roles and responsibilities is mentioned more often in later papers together with the usefulness of stretch targets for motivating performance, and the important role of facilitators.

Table 5 presents the concepts that occur

Table 4. Concepts which occur significantly more often in later papers

Category	Description	Early	Late	Difference
Collaboration	There is no general recipe for ensuring success of collaborative relationships	1	5	4
	Collaborative relationships still need systems and procedures to enable the teams to work	1	5	4
Contract	Collaborative relationships tend to be tied together by a short document which describes the relationship, the desired behaviours and the risk reward structures	2	8	6
Customer	It is important that the customer is part of the collaborative relationship with the contractors		5	5
Risk reward structure	The win-win or commercial alignment is enabled by the risk reward structure sometimes called 'gainshare'	6	13	7
Structure	It is important that changed roles, responsibilities, and accountabilities are clearly defined and understood	3	8	5
Targets	If team members are committed to a stretch target (which they previously would not have believed possible) they are more likely to achieve extraordinary performance even if they do not achieve the stretch target	3	8	5
Team	A facilitator plays a crucial role in managing change, building effective teams, building shared objectives and helping people believe that extraordinary performance is possible	2	7	5
	A facilitator helps the teamwork together to build shared visions and objectives	2	6	4

Table 5. Concepts which appear significantly more often in early papers

Category	Description	Early	Late	Difference
Beliefs	It is important that each team member understands the need of the other companies and team members	8	2	-6
Collaboration	Collaborative relationships have open communications with no hidden agendas	17	10	-7
	In a collaborative relationship there is open and free communication at all levels	8	2	-6
	In a collaborative relationship, there is commitment to each other's success	8	3	-5
	In a collaborative relationship there can be high levels of trust	14	9	-5
Performance	In collaborative relationships problems are owned and solved jointly	6	1	-5
	Part of the process of building extraordinary performance involves challenging existing custom and practice	7	2	-5
Risk reward structure	It is important that ways of measuring performance are agreed and put in place	12	7	-5
	Contractors should be expected to accept risks only if they have some influence over the outcome	5		-5
Win-win	All companies in a collaborative relationship must feel happy with the relationship and with the outcomes—a 'win-win' relationship	10	3	-7
	A prize offered by collaborative relationships to contractors is long term security of work	9	2	-7
	A prize offered by collaborative relationships to contractors is maintained or increased profit margins (even though the volume of work on one job may decrease)	7	1	-6

more often in earlier papers. Issues such as understanding of the needs of others, commitment to the success of others, open communication, joint solution of problems, the existence of trust and the nature of win-win relationships are all given more emphasis in early papers than in later ones. It could be argued that these are perhaps more theoretical aspects, which might be taken for granted once a successful relationship has been established. Surprisingly, the need for methods of assessing performance and for challenging existing practices seem to be more evident in the early papers than in later ones.

Conclusions

This study has considered the development of collaborative relationships between operating companies and their prime contractors in the UK's upstream oil and gas industry. Some characteristics of collaborative working and factors necessary for success have been reviewed.

From this study it is clear that the ideas of collaboration are widely recognized and accepted throughout the industry, especially between oil companies and their prime contractors. Over the years since 1992, partnering and alliancing have become an accepted way of working and they are no longer regarded as novel.

The content of 63 conference papers, presented by practitioners in the field, has been analysed to assess whether the industry's thinking has changed from 1993 to 1998. The concepts used most frequently by the authors reflect many of the findings from academic literature.

Surprisingly, there appears to be no outstanding difference in the frequencies of occurrence of concepts between early and later papers, and this suggests that thinking has not changed greatly over the period studied. There is, however, some indication that experience-based ideas are given more emphasis in later papers. For example, the absence of a formula which guarantees success; the importance of the customer being part of the relationship;

the role of the risk/reward structure in creating commercial alignment; and the importance of good systems and procedures. A number of the more theoretical issues appear to be less emphasized in later papers, e.g. understanding the needs of others; being committed to the success of others; the need for open communication at all levels; trust; joint solution of problems; and challenging existing custom and practice.

The underlying principles of collaborative working and the factors necessary for success have not changed since 1993. The analysis shows that the authors of the early papers were aware of these principles and factors. The later papers show that the hard experience gained since 1993 has served to reinforce the awareness and understanding, even though there have been slight changes of emphasis.

The fall in oil prices at the end of 1998 appears to have placed strains on relationships, as operators required further cost reductions from their contractors. It seems that terms such as alliancing or partnering are used less often now. However, ideas of collaboration across the supply chain are still being emphasised by the industry.

Biographical notes

Dr Richard Green is a Research Fellow in Robert Gordon University's Offshore Management Centre. His main research area concerns the relationships between North Sea oil companies and their contractors. Before joining Robert Gordon University, he worked for British Petroleum in London, Iran and Aberdeen.

Professor William Keogh holds the Brisco Chair in Entrepreneurial Studies in Robert Gordon University's Centre for Entrepreneurship and SMEs. His main research areas are innovation, entrepreneurship, total quality management and operations management in small companies. Before joining Robert Gordon University, Professor Keogh lectured in Operations Management at the University of Aberdeen and Management Science at the University of Stirling.

References

- Bower, D. J. and Keogh, W. (1997a). Innovation management in the supply chain and the limitations of lean supply. In: R. Oakey and S. Mukhtar (eds) *New Technology-based Firms in the 1990s, Vol III*, Paul Chapman Publishing, London.
- Bower, D. J. and Keogh, W. (1997b). Conflict and co-operation in the technology-based alliances, *International Journal of Innovation Management*, Vol. 1 No. 4 pp. 387–409.
- Carlisle, J. A. and Parker, R. C. (1989). *Beyond Negotiation—Redeeming Customer-Supplier Relationships*, John Wiley & Sons Ltd.
- Cohen, M. (1996). Successful partnering relies on creating 'relatedness' between parties and individuals: investing the time and establishing the best approach to managing change. Presented at IIR Conference on Partnering and Alliances '96. Aberdeen 30 October.
- Crabtree, E., Bower, D. J. and Keogh, W. (1997). Conflict or collaboration: the changing nature of interfirm relationships in the UK oil and gas industry, *Technology Analysis & Strategic Management*, Vol. 9 No. 2.
- CRINE Network (1999). *Supply chain Management in the UK Oil and Gas Sector*.
- D'Anocona, J. (1997). Small medium enterprises—the impact of alliances and partnering on SMEs. Presented at IQPC Conference on Alliances in Oil and Gas. Aberdeen 22 April.
- Department of Trade and Industry (1999). *Development of the oil and gas resources of the United Kingdom 1999*, HMSO, London.
- Ellram, L. and Eddis, O. (1996). A case study of successful partnering implementation, *International Journal of Purchasing and Materials Management*, Vol. 32, No. 4.
- Farrell, S. (1995). An international perspective on risk/reward contracting: comparison of US, Middle East and UK alliances. Presented at the Society of Petroleum Engineers Offshore Europe 95 Conference. Aberdeen 5–8 September.
- Gedik, A. (1994). Setting effective performance measures that will prove that partnering is saving you money and improving performance. Presented at IIR Conference on Proven Partnering and Contracting Strategies. Aberdeen 25 October.
- Green, R. L. (1997). An overview of partnering and alliances in the North Sea Oil and Gas Industry. Presented at Learning in Business Ltd Conference on Evaluating Contract and Alliance Strategies. Aberdeen 29 April.
- Kemp, A. (1993). Economic aspects of cost saving in UK continental shelf. *North Sea Study Occasional Paper No. 45*. University of Aberdeen, Department of Economics.
- Kemp, A. (1994). Low oil prices and prospective activity levels in the UK continental shelf and the effect of cost saving. *North Sea Study Occasional Paper No. 46*. University of Aberdeen, Department of Economics.
- Knott, T. (1996). *No Business as Usual: An Extraordinary North Sea Result*. The British Petroleum Company.
- Lamming, R. (1993). *Beyond Partnership—Strategies for Innovation and Lean Supply*. Prentice Hall.
- Latham, M. (1994). *Constructing the team (The Latham Report)*, HMSO.
- Macbeth, D. and Ferguson, N. (1994). *Partnership Sourcing: An Integrated supply Chain Approach*. London: Pitman Publishing.
- Oil and Gas Industry Task Force, (1999). <http://www.dti.gov.uk/ogitf/> [22/11/99].
- Segal, Quince Wicksteed Ltd. (1997). *Improving SME Supply Relationships in the UK Oil and Gas Industry*, OSO, Glasgow.
- Shepherd, C. 1997. Judy/Joanne 'not alliance' alliance case study: achieving the benefits and philosophies of alliancing without risk and reward sharing. Presented at IIR Conference on Partnering and Alliances '97. Aberdeen 22 October.
- Shepherd, C. 1998. A non-alliance—Judy & Joanne. Alliancing is a state of mind not a piece of paper. Presented at LIBL Conference on Alliances and Contracting in the Oil and Gas Industry. Aberdeen 21 January.
- Spekman, R. *et al.* (1996). Creating strategic alliances which endure, *Long Range Planning* Vol. 29, No. 3. pp. 346–357.
- UKOOA. (1994). *CRINE Report: Cost Reduction Initiative for the New Era*, Institute of Petroleum, London.
- Vollmann, T. and Cordon, C. 1998. Building successful customer-supplier alliances. *Long Range Planning*, Vol. 31, No. 5, pp. 684–694.
- Woolfson Foster, J. and Beck, M. (1997). *Paying for the Piper: Capital and Labour in Britain's Offshore Oil Industry*, Mansell Publishing Ltd, London.

Appendix 1**Papers by conference**

Conference title		Date	Location	Organizer
Partnering and Closer Working Relationships		05-July-93	London	IIR
Author	Company	Title of paper		
Drummong B	Wood Group	Analyse the problems of change in organisational structure, culture and working practices in partnering		
Foreman P	Trafalgar House	The EC procurement directive and its potential impact on partnering arrangements		
Hazlett K and Johnston J	BP Exploration	Partnering in the Forties Oilfield		
Hill T	AMEC Offshore	The practicalities of partnering in maintenance, developments, modification and service contracts		
McCallum J	Global Marine Drilling	Managing the move to partnering from the subcontractor's point of view		
Miskin C	Sonat Offshore Drilling	Building trust between client, contractor and subcontractor to improve productivity		
Murphy D	Kvaerner H&G	Partnering in practice — clarifying the concept and analysing the potential of strategic alliances		
Rhodes C and Finch D	BP Exploration	Partnering — developing closer working relationships to add value to offshore operations		
Warrack R	Smedvig Ltd	Rethinking your business strategy as a potential partner rather than as a contractor		
Conference title		Date	Location	Organiser
Partnering and Closer Working Relationships		07-Dec-93	Aberdeen	IIR
Author	Company	Title of paper		
Aikens T	PA Consulting	Refining your performance measures to ensure that partnering is really saving you money		
Foreman P	Trafalgar House	Obtaining a balance of liability, responsibility and reward to ensure maximum commitment from all partners		
Gowers E	Bechtel	Designing flexible contracts to express new partnering agreements in legal terms		
Gray K and Mackay	Chevron UK	Achieving the benefit of team working — Chevron's five million pound saving on the Alba jacket		
Kirton P	Baker Hughes Inteq	Restructuring your organisation from the top down to facilitate the move into partnering		
McEwan A and Hogg S	Conoco UK	Making effective use of the client/contractor integrated team principle to maximise time and cost savings whilst improving quality and safety		
McKersie A	British Gas	Demystifying the EC procurement directive and its impact on potential partnering arrangements		
Murphy D	Kvaerner H&G	Focusing on the importance of culture change to gain maximum benefit from partnering relationships		
Roxborough	Clifford Chance	Avoiding infringement of procurement/competition law in partnering agreements and consortia bidding		
Shaw P	Amerada Hess	Contractor selection — evaluating potential partners to ensure their compatibility and capacity to provide high quality within budget and time targets		

Conference title	Date	Location	Organiser
Proven Partnering and Contracting Strategies	25-Oct-94	Aberdeen	IIR
Author	Company	Title of paper	
Ballard S	Baker Hughes Inteq	Fine tuning your organisation to ensure successful partnering	
Behounek M and Dodds N	Sperry-Sun Drilling Services	The vital role of benchmarking in measuring and improving the performance of the partnership	
Blackmore L and Allison	BP Engineering	Successful partnering from the sub-contractor's point of view	
Carr J	Noble Drilling	Setting up a win-win partnership contract—getting it right first time	
Foreman P	Trafalgar House	Clarifying the legal aspects and pitfalls to be aware of when entering closer contractual relationships	
Gedik A	Wood Group	Setting effective performance measures that will prove that partnering is saving you money and improving performance	
Jones N	Hunting Oilfield Services	Making effective use of integrated client/contractor teams to maximise time and cost savings whilst improving quality and safety	
Rushmore P	Rushmore Associates	Gaining maximum commitment from all partners to ensure that everybody is working towards the same goals	
Rustam S	AMEC Process and Energy	Assessing the benefits and pitfalls of the different contracting strategies to determine which is right for you	
Waddell J and Mason P	Kvaerner H&G Offshore	Closer working relationships in the future—our vision of partnering and contracting strategies and what to expect from your partner	
Conference title	Date	Location	Organiser
Alliances in Oil and Gas	22-Apr-97	Aberdeen	IQPC
Author	Company	Title of paper	
Bakker T	Wells Engineering Ltd	Selecting the right alliance: EG and IQ in partnering relationships	
Carlisle J	John Carlisle Partnerships	Evaluating the all important culture of trust	
D'Ancona J	Balmoral Group	Small medium enterprises—the impact of alliances and partnering on SMEs	
Gibson F	Texaco UK	Erskine Field—selecting then building the right alliance	
Miller C	Shell Expro	Alliances contract strategy—a risk or benefit	
Mitchell D	Brown and Root	The Wandoo alliance	
Morgan D	Conoco	Deciding when alliances are appropriate	
Patten R and Swaine R	Brown and Root	Tendering and winning	
Rennie A	AMEC Process and Energy	Beyond partnering and alliancing	
Sannes J	Statoil UK	Building successful alliances overseas	
Scott A	British Gas	Amada field: a new management philosophy	
Scott B	BP Exploration	Alliances just another buzzword or a true departure from traditional practices	
Conference title	Date	Location	Organiser
Partnering and Alliancing '97	22-Oct-97	Aberdeen	IIR
Author	Company	Title of paper	
Buchan R	BP Exploration	Successful operational alliancing—a case study from BP Andrew	
Carlisle J	John Carlisle Partnership	Key steps to successfully changing behaviour to establish a sound foundation on which to build 'relatedness' across the alliance team	
Cerrito E	AGIP	Successfully developing an FPSO technological alliance: Aquila Field Case Study	
Giles B	Kvaerner Oil and Gas	Identifying the critical factors that make an alliance succeed or fail	

Karevold KI	The Organisation Development Association	Key factors in identifying and selecting alliance partners
Karlsen E	The Organisation Development Alliance	Developing an alliance model as a tool for structured analysis of alliances
Kassen K	University of Oslo, Institute of Maritime Law	Legal aspects of alliancing: the parties' needs, opportunities and constraints—and the resulting contract structure
McLennan K	Wood Group Engineering	How can you tell if you are doing a good job? Implementing a performance measurement programme which enables you to measure the success and target areas for improvement in the alliance
Neffgen J	Global Marine Integrated Services	Determining the best approach to developing a tailor-made contract strategy and framework for the alliance
Shepherd C	Phillips Petroleum	Judy/Joanne 'Non Alliance' Alliance case study: Achieving the benefits and philosophies of alliancing without risk and reward sharing

Conference title	Date	Location	Organiser
Alliancing and Contracting in the Oil and Gas Industry	21-Jan-98	Aberdeen	LIBL
Author	Company	Title of paper	
Beggs D	Denton Hall	The legal issues involving partnering and alliancing in the oil and gas industry	
Brooks K	ARCO British	Can the value of long term contractor supplier relationships be maintained?	
Brown N	Wood Group	The impact of CRINE produced contracts on partnership alliances in the oil and gas industry	
Chocqueel-Mangan J	Renaissance Solutions	Implementing a performance strategy and measuring the success of an alliance against corporate objectives	
Davies J and Nelson S	Elf Expro	The Elgin PUQ Alliance	
Foreman P	Kvaerner Oil and Gas	Implementing cultural change during an alliance contract	
Higham R	AMEC Process and Energy	The alliance between Mobil and AMEC	
James D and Murray S	British Gas	Setting up an operations alliance—The Armada Project	
Leiper A	Britannia Operator Ltd	Alliancing and team alignment in a high performance development drilling operation	
Memory H	Hendron Consultancy	Developing channels of communication between partners	
Phillips I	Halliburton	The commercial basis underpinning alliancing	
Shepherd C	Phillips Petroleum	A non-alliance alliance—Judy & Joanne. Alliancing is a state of mind not a piece of paper	

The UK's oil and gas sector is dominated by production from offshore areas, which account for virtually all of UK output[footnote 1]. Production of natural gas began in 1967 with the West Sole field in the Southern North Sea. Offshore oil production began with the Argyll field in the Central North Sea (CNS) in 1975. At the start of the industry in the 1960s and 1970s production was dominated by a small number of very large fields, such as Inde, Leman, Forties, Brent, Ninian and Piper. In September 2019, the industry published its Roadmap 2035: A blueprint to net zero, which outlines how it can continue to help meet the UK's energy needs whilst making a positive contribution towards the UK's 2050 net zero emissions ambition. Key economic parameters. Oil and gas prices. However, Wood Mackenzie's UK upstream oil and gas review said promising new fields were due onstream, and an increase in UK-focused deals was expected in 2014. The study found that in 2013 capital investment reached its highest level in real terms since the mid-1970s, with an anticipated £21.3bn being spent on projects across 2013 and 2014. It suggested activity had fallen, particularly in the UK, because of a restricted pool of buyers and perceived risks over later-life assets. Wood Mackenzie's head of UK upstream research, Lindsay Wexelstein, said the UK's upstream sector should look to 2014 with cautious optimism. She added: "Although some uncertainty remains over the longevity of the sector, 2014 could prove to be a pivotal year for the UK's North Sea. generation A study of the UK upstream oil and gas workforce December 2014 2. Current labour market position. 1. The UK oil and gas. labour market in context p9 p8 Commissioned by The oil and gas industry is a valuable asset to the 4. How might demand for skills change over the next five years? UK economy. It provides 1 in every 80 jobs and has a strong reputation globally as a centre of 5. What factors are driving this change? excellence. Aberdeen-based companies than in the rest of the UK; difficulties in the ability to recruit are fairly similar across both large organisations and SMEs. Fuelling the next generation - A study of the UK upstream oil and gas workforce 6 2014 Disciplines in highest demand. Geosciences Drilling Technical / Operations & Business.