Alliancing for capital projects: one way for the future
Part 1

With large capital projects, involving a group of contractors, the 'alliance' is proving a popular way of creating a committed project team that is displacing the older forms of contracting in some industries. Spectacular successes have been achieved with projects that initially looked unattractive, but it may not be an arrangement that will suit all situations. This two-part article looks at the concept and practicalities of alliances, beginning with the risk and reward principle.

by Alan Webb

The 1960s and 1970s saw 'diversification' as the gospel for business success, and many large organisations went on a buying spree that took them into technologies and markets that were to prove an expensive experience. With the 1990s came a new realism as those same firms began to divest themselves of their acquisitions, as success was now seen to lay in concentration on 'core business' and markets that are well understood. Increasing specialisation, and the growing complexity of technological systems, has meant that companies that could once have tackled projects largely from their own resources now have to form teams of specialist organisations to complete the task. Where specialisation and 'product excellence' have brought benefits to the project in a technical sense, the use of teams formed from a variety of companies has brought new challenges for managers.

Significant capital projects such as the Jubilee Line Extension, the Channel Tunnel or the British Library are never out of the public arena; when the press realises there are problems the clamour from the sidelines can be deafening. Despite the plethora of contemporary management techniques such as 'earned value costing' and 'risk analysis', a glance through the business section of any of the broadsheets will reveal that many current projects are as far behind their original schedules and exceeding their budgets as those of former times. One aspect that has been recognised as contributing to this situation is the contracting practice that has been used, particularly when a range of companies have been involved in the project. In the last few years 'alliancing' has been adopted by several large organisations as an arrangement that gets away from the old adversarial approach in an attempt to improve the performance of projects. Some notable successes are being claimed.

'Alliancing' has been adopted as an arrangement that gets away from the old adversarial approach

Combined effort

The historic need for organisations or individuals to pool both their efforts and resources in the pursuit of a common goal has resulted in a number of legal and contractual arrangements that the partners can choose from as a way of formalising their relationship. Chief among the well-established methods are: (*a*) Prime contractor led projects; (*b*) Partnerships; and (*c*) Joint ventures. The 'alliance' can now be added to this list and it differs from the traditional approaches in a number of important respects. Taking each of the established methods:

(a) Prime contractor led projects

This arrangement is often used when a project is undertaken by a group of companies on behalf of a sponsoring organisation that wants the end result, be it a product or service, but does not directly participate in the execution other than at an overall managerial level. Such arrangements have been common where development of a new system, such as a combat aircraft, is carried out by a group of companies for a non-commercial organisation such as a defence ministry. In this case one company is designated the prime contractor and has complete responsibility for delivery of a working end product. The other companies in the venture are contractors to the prime contractor and take their day-to-day direction from him. Prime contractors take on overall responsibility not only for the technical aspects of the project but the general administration and the responsibility for the total project cost. Contractors report progress to the prime contractor and submit invoices to him. Contract terms between the prime contractor and the other companies are often let on a 'back-to-back' basis that reflect the terms on the prime contractor. The prime contractor is thus in the position of being able to make the most profit from the total contract, but he also bears the greatest potential risk if things go wrong.

(b) Partnerships

When two or more individuals or companies decide that they have a joint interest in pursuing some venture a partnership may be formed. This is a legally binding arrangement between the parties. In an ordinary partnership all the partners are liable in full for the debts of the undertaking, even to the extent of their personal possessions; it is the corporate equivalent of a marriage in which two become one. Limited partnerships can also exist and here the limited partner is liable only to the extent of his investment in the venture; however, he can take no part in the management. Partnerships are popular with individuals who wish to work together without forming a limited company (e.g. firms offering specialist services such as solicitors or consultants) but can also be used by large organisations to fund the development of a major venture.

(c) Joint ventures

Joint ventures, in which two or more firms collaborate on a project, may be undertaken either as a 'contractual joint venture' or a 'joint venture company'. Contractual joint ventures exist where a contract to work together is agreed between the parties but no separate legal entity is formed. To oversee and manage the venture a steering committee will usually be created with representatives from the firms involved. With the 'joint venture company' (also known as an 'equity joint venture') a company is set up which is a legal entity that is separate from all the co-operating companies but in which all are shareholders. It will have a board formed from directors of the collaborating companies. The joint venture company will operate in the normal way for accounting and tax purposes, the individual companies being liable to the extent of their share capital involvement although they may be asked to provide additional indemnities to third parties if the assets of the joint venture company are small but the undertaking is large. The advantage of the joint venture company is that it can be made limited, unlike the partnership, but the disadvantage is that it incurs the administrative costs of an individual company in setting it up and in the continuing preparation its own reports and accounts.

The alliance falls somewhere between the partnership and the contractual joint venture in that there is no separate legal entity formed but the members of the alliance share in its fortunes including subsidising its losses should a loss be incurred on the whole venture.

It should be noted that the term 'alliance' does not have the same legal connotations as 'partnership' or 'joint venture company'; in consequence it is often loosely applied. In the UK alliances have been used on major capital projects in the way that is described in the remainder of this article. However, on the other side of the Atlantic the term 'alliance' is often used to describe a longer term strategic agreement between companies to work together rather than a contractual arrangement for a specific project. Alliances under that interpretation can be based on any arrangement, including joint ventures, that suits the members. However, alliances of all forms contain the idea that the future of all the members is bound together in a way where risks and rewards are shared.

Future prospects

The concept of the alliance for capital projects was not spurred by the desire to create yet another form of partnering without some of the legal complications associated with the traditional arrangements, but by a wish to create a framework in which companies could co-operate and prosper in a way that had proved difficult under the older systems. With the contractual approach to capital projects, such as building chemical plants or exploiting oilfields, the sponsor or owner of the resulting asset acts rather like a prime contractor; often doing a significant part of the work himself but taking on a range of subcontractors for the specialist tasks. Once the new capital asset is complete, any profits that accrue through its exploitation belong entirely to the owner as do any losses if the asset proves uneconomic. Beyond getting paid for their work, the subcontractors have no further interest in the project once their task is complete. The alliance sets out to change all that by introducing a principle that each member of the alliance has a stake in the future of the project besides the completion of their own part. If the project as a whole can turn into a profitable venture then all can benefit from it. This is a major departure from previous practice and it brings with it some new concepts.

Old horses, new courses

Implicit in the alliance is the concept of a risk-sharing arrangement between all the co-operating companies, as both the owner and the contractors become members of the alliance once it is set up. Whatever rewards or risks come to the owner are shared with all the alliance membership. It means that returns are not guaranteed if things do not turn out as expected, but if big profits can be made by the owner then the other alliance members can reap much greater rewards than would have been possible under the previous approach. The driving force behind this arrangement was a desire to promote significantly improved performance from the participating contractors by making each have a financial stake in the outcome of the project rather than simply looking at the narrow perspective of maximising his own short-term gain. However, not all companies that might wish to take part in a project will either want to or be suitable for membership of the alliance; they are not barred from having a part to play but their role and contractual arrangements will be the same as an ordinary subcontractor.

The future of the members is bound together in a way where risks and rewards are shared

For the alliance to work as a practical vehicle requires rather more of both the owner and the contractors than a simple willingness to accept some of the financial risks in return for a share in the profits. The principle of sharing the rewards amongst all the members is aimed directly at breaking down barriers to co-operation that have been built up over years and set in the concrete of conventional wisdom. But deeply-rooted traditions die hard in industries where commercial confidentiality, competitive tendering and liquidated damages have set the tenor of current practice. The old arrangement was based on a desire for control from the centre and a belief that those with whom one does business cannot be trusted or be relied on

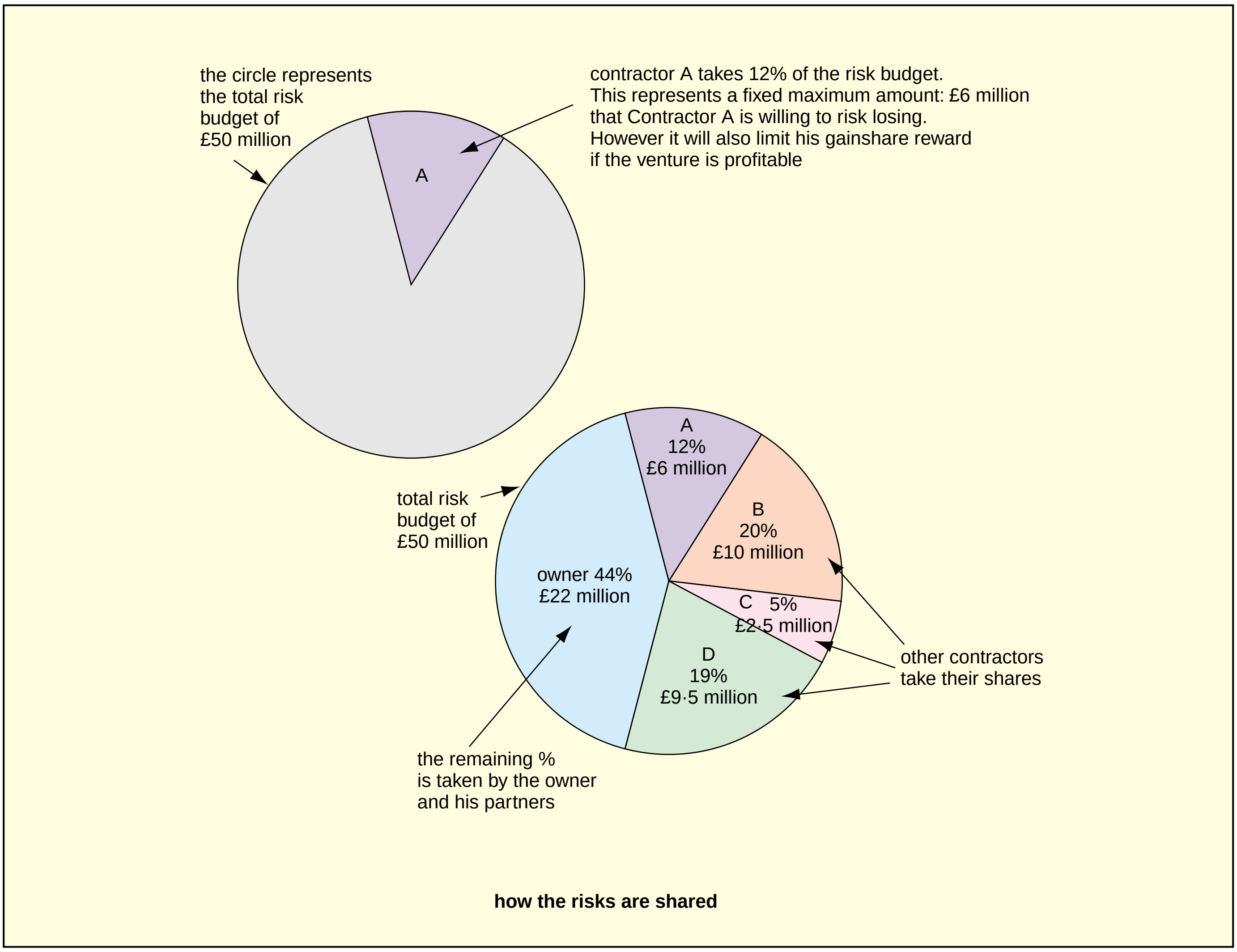


Fig. 1 Division of the project risk budget among the members of the alliance; the percentage risk shares of each member do not necessarily reflect their percentage contribution to the total project budget

to do what they promised; it was only through the application of exacting contractual terms that any confidence in the outcome of a business deal could be generated. There can be little doubt that, when difficulties arose on projects, thinking of that type often made matters worse for it promoted a recourse to legalities and a defensive position rather than a willingness to propose solutions. Although the adversarial quality that underlies much current contracting practice may have sharpened the focus of contractors on the expected results, it has weakened the whole project organisation in terms of its ability to function as a committed team. Increasingly it is being recognised that harnessing the power of the 'team' and the range of skills it embodies is essential if complex and demanding projects are to be completed to everyones' satisfaction.

Becoming an alliance member requires a cultural change from a defensive stance based on self-interest to one of openness and co-operation; some firms will find that relatively easy while others with a more conservative outlook may find it more difficult. Thus not every organisation will be suitable to join an alliance. However, it is not just a matter of cultural adjustment for the contractors that do join, as success relies equally on the actions of the owner. Being part of a risk-sharing arrangement means that the owner must divulge to the members far more information about the prospects and progress of the project than would have been deemed prudent before. A trusting attitude is the basis from which co-operation springs and the owner, more than any other member, must take the lead and be seen to act in the spirit of the alliance.

Gainshare… and painshare too

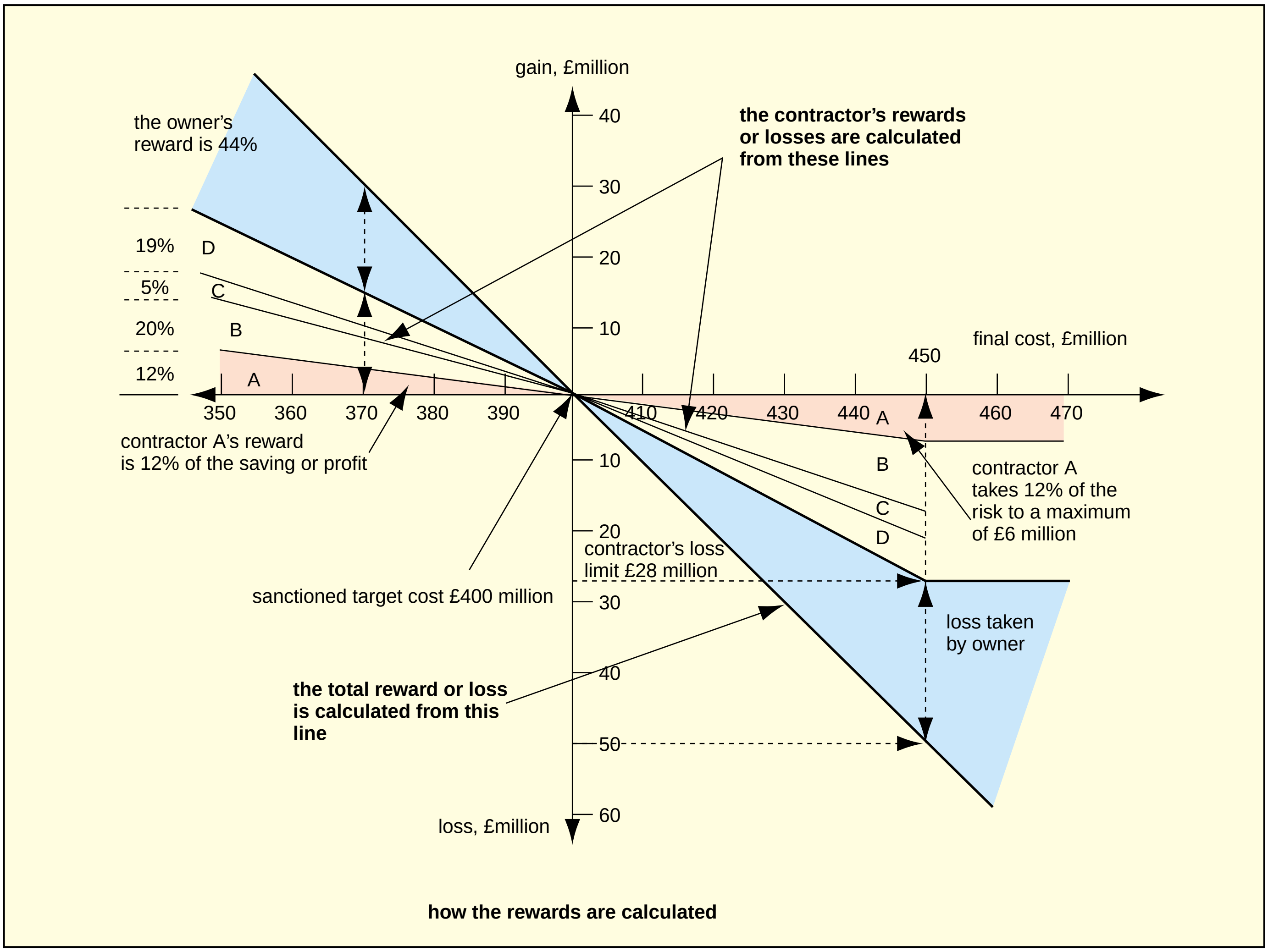
A fundamental principle of alliances is the acceptance on the part of all the members of a share of losses, should they arise, as well as a share in the rewards of the project; the practical expression of this principle is the 'gainshare/painshare' contract to which all members must subscribe. Simple though this principle may be, there are limitations when it comes to implementing it, hence a 'gainshare/painshare' contract has to be written within strict parameters. In particular, there will be limits to the losses that any of the alliance members, other than the owner, will be willing to accept if the project turns out badly. Each contractor will have his own views on this, and the loss any contractor is willing to take may not be in the same proportion as his share of the total project cost.

The amount of exposure that can be borne by the contractors in the alliance will be determined by their willingness to accept losses or reductions in profit up to some maximum figure that they must decide individually. Losses over and above that maximum are borne by the owner and his partners that are funding the project. It might be expected that the contractors in the alliance will take 50% of the risk exposure while the owner and his partners shoulder the other 50%. This split may or may not be achievable depending on the view of the risk that each contractor takes.

The same principle applies if the project is completed for less than its budget or it makes an operating profit. In this case the rewards are shared between the owner and the members of the alliance in the same proportions as that for the risk exposure. Even though there is a maximum risk exposure limit for each contractor there is no maximum for the reward that each contractor can receive; whatever savings or profits are achieved, they are shared in the same proportions. In practice, however, the reality of the situation imposes its own limits.

A graphical illustration will show how the 'gainshare/painshare' principle works. Suppose the members of an alliance have agreed that a project has a target cost for completion, up to the point that exploitation of the asset can start, of £400 million. This figure represents a total

Fig. 2 Rewards or losses are calculated on a basis that is strictly proportional to the difference between the sanctioned target and the final costs and the proportion of the risk budget each contractor takes



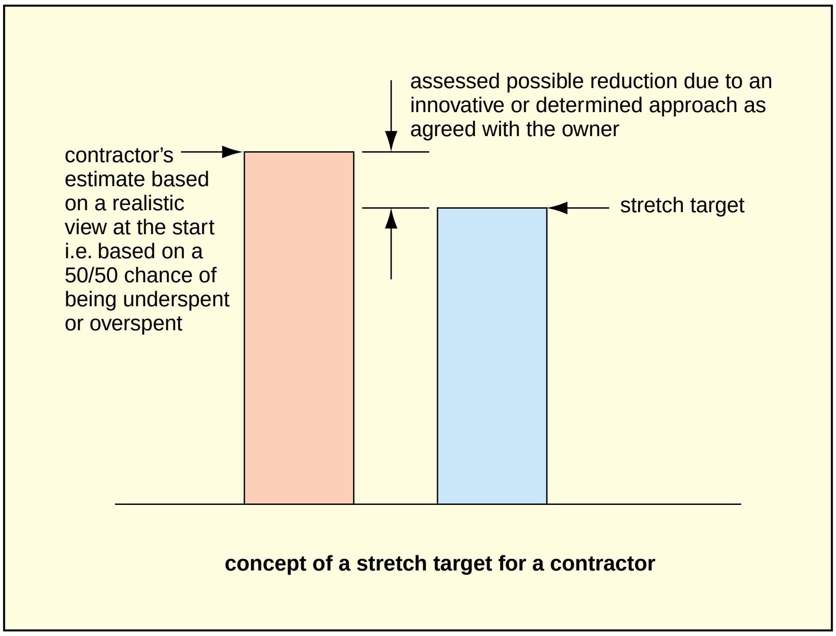


Fig. 3 Stretch targets require a thorough examination of the design, or service, concept at the start and a reasoned assessment of what savings may be possible. Stretch targets are not backed by any form of guarantee

budget that is built up from target estimates that each contractor feels he can achieve with a 50% probability but containing no risk contingency provision. To this is usually added an owner's contingency fund that will take the probability of being sufficient to some higher figure. This is the sum that the alliance as a whole should aim to complete the project for; it is often referred to as the 'overall target at sanction' and it will be used to calculate the 'gainshare' loss or reward.

Now assume that, after a thorough risk assessment of the whole project, but excluding the exploitation phase, an additional risk budget of £50 million is agreed among the alliance members. This budget can be assumed to represent a sum that will take the project from the sanctioned level of expectation (e.g. 60–70%) to something greater than, say, 95%. Each contractor must decide how much risk money he is willing to contribute to the £50 million; the value of each contribution determines the contractor's percentage share. Fig. 1 shows this division.

To see how the 'gainshare' formula works we need to consider the position at the point where it is agreed by all the alliance members that the construction phase of the project is complete. Fig. 2 shows the characteristics of the formula; it will be seen that there is a simple relationship between the final outturn cost for the project, the original target cost and the division of rewards or losses. If, for example, the project is completed for £370 million there is a £30 million saving on the total target cost and this is shared among the members in direct proportion to their contribution to the risk budget. Contractor A, who put up 12% of the risk budget, could expect to receive a reward payment of £3·6 million. Conversely if the project had overspent by £30 million contractor A would be expected to contribute £3·6 million from his risk provision. As each contractor is only willing to contribute a limited amount to the risk budget once that budget is exceeded all further losses are carried by the owner.

The reward or risk amount either paid to or demanded from each contractor is independent of the actual costs billed to the project. Thus a contractor on a cost reimbursable contract could overrun on his target cost but still collect a reward, irrespective of the size of the overrun, if the project as a whole is completed below target cost. The reward would, in this instance, be in direct proportion to his percentage contribution to the risk sum irrespective of his actual performance.

Payment to contractors during the course of the project will be made in accordance with the contract terms agreed at the time of joining. Some contractors may be engaged under a fixed-price (lump-sum) arrangement while others could be engaged on a fixed-profit, cost-reimbursable basis. Both arrangements can exist within a 'gainshare' contract, as the formula is applied at project completion and depends on the outturn of the project as a whole, not the performance of the individual contractor. The settlement of rewards or losses can be made only when the final cost is known.

Despite the apparent simplicity of the mathematics and the attractions of an increased reward for good work there are obvious problems with this arrangement, and some potential contractors would clearly be wary of it. In particular, if a given contractor does well on his part of the project but the rest of the team perform poorly he could end up paying an additional sum, thereby losing most or all of his profit, even though he has done nothing to deserve it. From the owner's point of view he should be cautious about the prices tendered by the contractors for if they are too easily beaten he could find himself paying out far more than was necessary.

The counter to the first of these objections lies in the second phase of the 'gainshare' contract. If the newly created asset is profitably exploited in the market, each of the alliance members stands to receive a share of the profits and thus to offset any losses made in the construction phase. The profit shares will again be calculated from the percentage risk contribution and payment will continue over a period that is agreed with the owner at the outset although it is not likely to cover the complete production life of the asset. Without this additional opportunity for profits many companies may feel that 'gainshare/painshare' in the construction phase alone offers little benefit over a simple fixed-price contract except that it has the added risk that their fortunes are now tied into a group of companies over whom they have no control and who may perform poorly. Furthermore the actions of the owner to secure his position might, if not handled properly, serve only to heighten these fears.

Full stretch

Owner organisations wishing to create alliances clearly require members that are culturally attuned to the ethos of the alliance, willing to take a share in the financial risks and offer the best value for their part of the project. Often the process of finding members is through letting open tenders, but there is nothing to stop an owner inviting a particular contractor to join if he wishes. Tendering has the advantage of letting the owner see the range of potential design solutions or services on offer and judge what the current market price for the work is. However, alliances are formed for reasons other than a desire for a low-cost design solution that conforms strictly to the tendered specification. That was the basis of the old approach, but the alliance aims to produce even better value by getting out of the contractual straightjacket and into a liberated world of co-operative working and creative approaches. The assumption is that, with enough of the right attitude, better solutions than those tabled at the start of the project can be found as the project progresses. It has led to the concept of the 'stretch target'; this may not be as fundamental to the concept of the alliance as 'gainshare' but it finds a place in current practice.

Unlike the gainshare/painshare formula, which can be stated with mathematical precision, stretch targets are a somewhat more ambiguous concept and this writer's discussions with managers engaged on a variety of alliance contracts revealed differences of opinion as to how these are established and used. The principle that improvements can always be found if the right attitude and effort are applied has already been stated; the stretch target formalises this by recognising it in the working arrangements. Fig. 3 shows the stretch target concept.

Stretch targets serve primarily as a notional incentive as they will not be embodied in the contract. However, the fact that they should be:

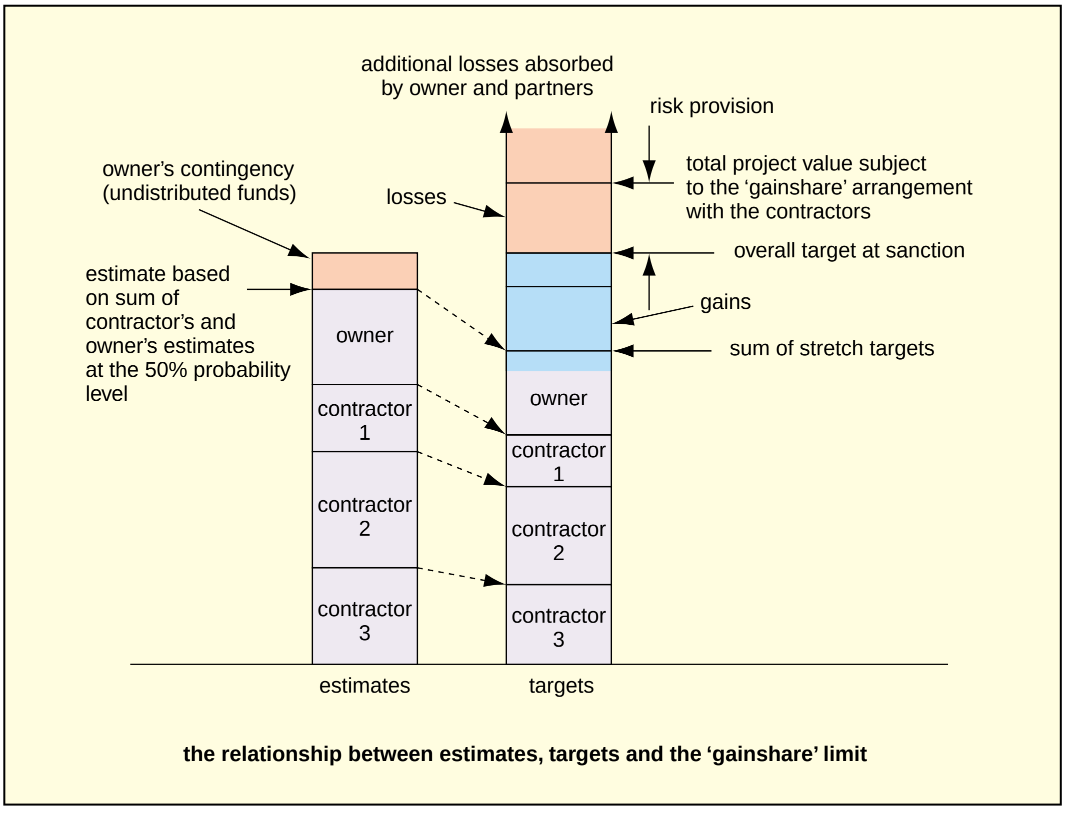


Fig. 4 Although the stretch targets are not embodied in the contract the potential gains will only be realised if they are achieved either in whole or in part

Table 1 Target costs and risk contributions. Notice, in this example from the *Andrew* oilfield project, that the percentage contributions of each of the contractors to the overall total target cost are not necessarily in the same proportions as the contributions that each partner is willing to contribute to the sum of money taken as the risk amount used in the 'gainshare' formula. Thus Brown & Root may have 9·89% of the total project value of £373 million but their contribution to the £50 million risk sum used to calculate the 'gainshare' limit is 22%. The percentage contribution to the sum at risk will determine what amount is paid as a reward in the event of the project being completed for less than £373 million or what additional amount is required in the event of an overspend.

contractor	target cost at sanction, £million	% of total	risk contribution, £million	% of total
Brown & Root	36·9	9·89	11	22
T J B	53·8	14·42	6	12
BARMAC	20	5·36	3	6
Saipem	32·5	8·71	3	6
Allseas	39·6	10·61	2	4
Santa Fe	28	7.51	1·5	3
Emtunga	5·60	1·5	0·5	1
Alliance Contractor's Total	216·4	58·02	27	54
BP & Partners	117·8	31·58	23	46
Contingency	38·8	10·4	–	–
Overall Total	373	100	50	100

(*a*) derived from a thorough analysis of what additional savings and improvements might be possible, and

(*b*) agreed between the owner and the contractor

should lend them credibility, even if it is recognised that the chance of fulfilment is less than 50%. The build-up of the target cost at sanction and the relationship to the other elements of the gainshare formula is shown in Fig. 4.

The overall target at sanction is the figure used for contractual purposes. In the interpretation shown in Fig. 4 the sanctioned target is composed of the contractors' and the owner's estimates for the work at the 50% probability level. However, alliance members may feel unwilling to commit themselves to a 'gainshare' contract, even if they have convinced themselves of the feasibility of meeting stretch targets, where the overall consensus is that there is no better than a 50/50 chance of making a gain. The owner may thus determine a contingency fund, to be distributed as needed, that is added to the sum of estimates to arrive at the final sanctioned figure. This contingency is quite separate from the risk budget and is held by the owner. It should, however, be pointed out that this is just one interpretation of the alliance financial arrangement and others are possible depending on the circumstances.

The stretch target and the 'gainshare' formula form the *raison d'être* for the application of other principles within the project that are not fundamental to the alliance contractual concept but can be accommodated in the project execution policy.

In the second part of this article, further aspects of the alliance will be discussed, including an assessment of its place and prospects in current business practice. BP's successful *Andrew* project will also be described and Table 1, shown here, gives the actual targets and risk contributions of the alliance members on the *Andrew* project so the reader may see how these figures relate in a real case.

Alan Webb started work in 1964 as an apprentice with the British Aerospace Corporation at Filton, Bristol, and graduated from Loughborough University in Production Engineering and Management. He later attained the position of controller of one of the largest N/C equipped machine shops in the UK at the time that Concorde production was at its height. He then spent four years in management consultancy before returning to industry to work on airborne weapons and their carriage and release equipment, becoming Senior Project Manager in charge of product design and development. He also sat on the technical committee overseeing the production of a major weapon system. In 1991 he formed Alan Webb Management Consultancy, providing lecturing services to various universities for MBA courses and consultancy to UK companies on all aspects of project management. He is an established author, having written 'Managing innovative projects' and numerous articles on a wide range of management issues. He is also a member of the British Standards Institution and has contributed to the production of a number of recent standards. Alan can be contacted on 01403 262166.