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CONSTRUCTION PROJECTS

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Identification of the CRITICAL SUCCESS FACTORS for Maintenance Contracts with TARGET COST CONTRACTING

• ABSTRACT •

Contract and procurement type as well as their key success factors influence the success of the construction projects. Target cost contracting and maintenance contracts are widely used in the construction industry. This paper aims at identifying the critical success factors for maintenance contracts, in particular those adopted a target cost approach. Two online questionnaire surveys have been applied to a sample consisting of industrial practitioners who had experience in the area of the study. The first survey aimed to establish new critical success factors that were not identified in the literature. The second survey asked the targeted industrial practitioners to rank the identified factors by their level of criticality. The experienced practitioners shared the opinion that the following factors were the most critical to the success of a maintenance contract adopting a target cost approach: correct / accurate (rates/norms) and the ability to review these during the length of the contract; good robust system in place for the collection of information such as labour and materials; high accuracy in relation to cost forecasting; understanding the amount of administration work that is required within a maintenance contract; incentive clause within the contract, so that the contractor has an incentive to reduce cost, while being awarded for increasing profit margin.

1. INTRODUCTION

The construction industry has been subject to several short comings such as restricted trust, un-balanced risk allocation, win-lose climate, project delays (Moore, et al., 1992). Contracts tend to be awarded to the lowest bidders resulting in reduced profit margins (Moore, et al., 1992). As the disputes could have impact on the success of the work and on the contractual relationships of the contracting parties (Sertyesilisik, 2010), the contract type used and the procurement type selected as well as paying attention to their key success factors can influence the success of the construction projects. TCC (Target cost contracting) was identified by Eggleston (2009), Chan (2010), and Suttie (2010) to be the right procurement option to rectify the construction industry's deficiencies. NEC option 3 target contract with activity schedule is the most commonly used of the main options of procurement in the UK. TCC strategies such as the 'gain-share/pain' mechanism provide contractors with incentives to save cost and work efficiently. TCC was widely implemented as it was recognized as an approach which would improve working relationships among all contracting parties and team members, via the use of open book accounting. Factors contributing to the success of TCC need to be taken seriously by all participating parties (Chan, 2010). This paper aims at identifying the critical success factors for maintenance contracts adopting a target cost approach. Chan (2010)'s study on 'identifying the critical success factors for target cost contracts in the construction industry' concentrated on the construction industry in general. The current research, on the other hand, is the first study that focuses on maintenance contracts specifically.

2. TARGET COST CONTRACTING

The construction industry has been subject to several deficiencies for a long period of time, such as unbalanced risk allocation, restricted trust and misalignment of objectives between contracting parties together with lack of incentives to improve project performance, leading to cost overruns, difficulty in resolving claims, a win loose climate and project delays (Moore, et al., 1992). Strong alarms have been raised because of the conventional practice of awarding contracts to the lowest bidders, which has resulted in low profit margins (Chan, 2010). This ongoing issue therefore has highlighted the need for a new approach to rectify the weakening situation. TCC is such a project procurement option that attempts to moderate risk, offer incentives to provide added value to the project, integrate the diverse interests of a complex construction project and avoid dispute / claim occurrence (Chan, 2010). TCC is defined by the National Economic Development Office UK – Civil Engineering (1982) as follows: "During the course of the work, the initial target cost will be adjusted by agreement between the client or his nominated representative and the contractor to allow for any changes to the original specification. Any savings or overruns between the target cost and the actual cost at completion are shared between the parties to the contract". Under target cost contracts, the definite cost of carrying out the works is evaluated and then compared with an estimate or the target cost of the work and the differences with a cost band are shared between the client and the selected contractor (Trench, 1991).

The target cost procurement approach is characterized by the agreement that the works will be completed within the contract period and that the cost to the client will not exceed the target cost as warranted by the contractor (Gander and Hemsley, 1997). TCC requires that the details of the contractors tender pricing for any TCC subcontract work packages be made fully available to the client, usually through an 'open book' accounting agreement (Chan, 2010). The use of open book accounting regime enables better accountability and quantification of the costs of risk (The National Economic Development Office, 1982). TCC has introduced a unique feature into the construction contract called the pain/gain mechanism, known as the contractors share (Trench, 1991). The contractors share is not constant, and the client will vary the size of the share according to the contactors savings above or below the target. Eggleston (2009) explains there are risks and rewards from the share mechanism when the contractor enters into a target cost contract. Both the client and the contractor have to carefully consider the share percentages due to the commercial implications (Suttie, 2010). Brownyn (2009) highlighted that the client may not embrace the risk sharing philosophy and may attempt to use the share

ranges as disincentive to prevent the contractor reaching beyond the total price. Commonly, the contractor's focus is on negotiating both a high target price and favorable share percentages to minimize their financial risks. For contractors who consider TCC as another form of reimbursable contract, 'there is a real danger' that sight can be lost of the financial risk of target cost contracts (Eggleston, 2009).

In a typical target cost construction project, there are two types of variations and these are often pre-defined under the contract conditions (Gander and Hemsley, 1997). These variations are design development and TCC variations (Gander and Hemsley, 1997). "Design development changes do not trigger a re-calculation of the target cost, as they are deemed to be included in the fixed lump sum of the contractors direct works finalized at contract award. However TCC variations can allow for a re-calculation of the target cost, and they will be valued in accordance with the measured works and schedule of rates" (Chan, 2010: 11). Variations may occur in a target cost project due to (Fan and Greenwood, 2004): change of scope; change in function; change in quality; adjustment to provisional sums; corrected errors; unexpected additional fees or charges forced by statutory authorities. Chan (2010) highlighted that the contractor should do his upmost to make the client aware of the value of the additional works and also the extension of time required.

NEC option 3 target contract with activity schedule is the most commonly used form of the main options of procurement available (Suttie, 2010). These types of contracts are versions of cost reimbursable contracts where the reimbursement of cost ceases or reduces where a target price is reached (Eggleston, 2009). NEC which includes various TCC options has been adopted in the engineering and construction sectors throughout the UK and overseas for many years (Broome, et al., 1995). Nicolini et al. (2000) explored whether TCC can be applied within the UK construction industry via case evidence from two pilot building projects (Chan, 2010). Nicolini et al. (2001) further found that both pilot building projects obtained a cost reduction of 8-14%, faster programme by 5-20% and re-work down by 90-95%. Walker, et al. (2002) demonstrate the success of TCC where the construction of the National Museum of Australia achieved excellent results under the design-and-build alliancing arrangement with a TCC approach.

TCC is a cross over between design-and-build and traditional design and build contracts (Fan and Greenwood, 2004). TCC can bring contractor's expertise in building design and innovations in construction methods or materials (Masterman, 2002). TCC can provide opportunity to the clients to exercise greater control over the process of design development and project cost integrating contractor's expertise and innovations under a defined framework (Chan, 2010). Drivers for adopting TCC include: a price ceiling and reduced cost variations for client (Chan, et al., 2007); the gain/pain share mechanism (Boukendour and Bah, 2001); involvement of contractor in design development (Chan, et al. (2007); an effective procurement strategy to conflict mitigation and resolution (Chan, et al. 2007); improvement of the working relationships amongst the project team members; cultivation of partnership and mutual trust between project stakeholders with the help of 'open book accounting'(Chan, et al. 2007). Potential difficulties, however, which can be encountered with TCC include: limited understanding of the TCC concept (Trench, 1991); target cost variations arising due to changes in the scope of work (Fan and Greenwood, 2004). Ten crucial success factors for guaranteed maximum price / target cost contracting include (Chan, 2010):

1. Reasonable share of cost saving and fair risk allocation
2. Partnering spirit from all contracting parties
3. A right selection of project team
4. Well defined scope of work in clients project brief
5. Proactive main contractor throughout the GMP/TCC
6. Early involvement of adjudication committee meeting
7. Familiarity with experience of GMP/TCC methodology amongst all contracted parties
8. Open book accounting regime as provided by the main contractor in support of his tender pricing
9. Establishment of adjudication committee meeting
10. Standard form of contract for GMP/TCC projects

3. RESEARCH METHOD

The research aimed to identify the critical success factors for maintenance contracts that have adopted the target cost approach.

Two surveys have been applied:

1. The first survey has been of an exploratory nature, with the use of open-ended questions to identify the key critical success factors.

2. The second survey has adopted a quantitative approach to confirm / validate the critical success factors for target cost contracting in maintenance projects.

Based on the first survey's findings, it was possible to develop an updated list of critical success factors for TCC that is more specific for maintenance contracts (which was created from the previous literature available, in particular Chan (2010)). The second survey was then created and sent out to selected sample of experienced professionals asking them to rate the level of criticality of each identified factor using the following ranking scale (1=not critical, 2=slightly critical, 3=moderately critical, 4=very critical and 5=extremely critical). The questions for the first and the second surveys have been presented in the Appendicies 1 and 2.

The surveys targeted professionals who had at a minimum experience working on a Target Cost Contract, but more specifically people who had experience working on Maintenance Contracts that had adopted the TCC approach. 33 responses were obtained in the first round and 43 responses were received in the second.

4. RESULTS AND DISCUSSION

--- 4.1. Data obtained from the first survey ---

(Qs 1 and 2) The first two questions were related with the survey respondents' position with their company and the contracting party which best describes their work. The largest number of respondents by position was Quantity Surveyors, closely followed by Construction / Project Managers and Directors. Of the 11 Quantity Surveyors 8 were Contractors and 3 were clients.

(Q 3 and 4) The results regarding the experience of the respondents in target cost contracts (Q3) and their experience in maintenance contracts (Q4) are summarized in Table 1.

Experience	Frequency (Q3) for experience in target cost contracts	Frequency (Q4) for experience in maintenance contracts
Under 1 year	2	2
1-2 years	7	5
2-5 years	4	9
Over 5 years	19	13
No experience	1	4

TABLE 01. The first survey's respondents' experience

(Q5) Table 2 demonstrates the level of agreement among the survey respondents with Chan (2010)'s identified success factors research. The majority of the respondents either agreed or strongly agreed that Chan (2010) identified factors will be somewhat critical.

Success factors	1	2	3	4	5	Rating	Response
						Mean	Count
Understanding the amount of administration work that is required within a maintenance contract.	0.0% (0)	9.4% (3)	25.0% (8)	37.5% (12)	28.1% (9)	3.84	32
Well-defined scope of work in client's project brief	0.0% (0)	6.3% (2)	12.5% (4)	28.1% (9)	53.1% (17)	4.28	32
Familiarity with and experience of Target Cost Contracting methodology among all contracting parties	0.0% (0)	0.0% (0)	21.9% (7)	56.3% (18)	21.9% (7)	4.0	32
The importance of having clear contract procedures in place such as stages/timings	0.0% (0)	0.0% (0)	3.1% (1)	53.1% (17)	43.8% (14)	4.41	32
A right selection of project team	0.0% (0)	3.1% (1)	18.8% (6)	37.5% (12)	40.6% (13)	4.16	32
Reasonable share of cost saving and fair risk allocation	0.0% (0)	3.1% (1)	25.0% (8)	37.5% (12)	34.4% (11)	4.03	32
Partnering spirit from all contracting parties	0.0% (0)	3.1% (1)	18.8% (6)	46.9% (15)	31.3% (10)	4.06	32
Early involvement of the contractor in design development	0.0% (0)	9.4% (3)	15.6% (5)	43.8% (14)	31.3% (10)	3.97	32
Proactive main contractor throughout the Target Cost Contracting process	0.0% (0)	3.1% (1)	18.8% (6)	43.8% (14)	34.4% (11)	4.09	32
The use of open-book accounting throughout the Target Cost Contracting process	3.1% (1)	3.1% (1)	18.8% (6)	43.8% (14)	31.3% (10)	3.97	32
Introduction of early warning meetings	0.0% (0)	3.1% (1)	12.5% (4)	46.9% (15)	37.5% (12)	4.19	32
Implementation of set targets within the contract which could affect profit for the contractor such as (KPI)	6.3% (2)	0.0% (0)	21.9% (7)	50.0% (16)	21.9% (7)	3.81	32

TABLE 02. The first survey's respondents' agreement level with the success factors identified in Chan (2010)'s research

The respondents felt that 'Well defined scope of work in client's brief' and 'The importance of having clear contract procedures in place such as stages/timings' were of most relevance compared to the results reported by Chan (2010) which show that respondents believing 'Reasonable share of cost saving and fair risk allocation' and 'Partnering spirit from all contracting parties' are the most relevant. The success factors in maintenance contracts specifically could therefore potentially differ.

(Q6) 45% of the respondents answered 'yes' and 55% answered 'no' to whether target cost contracting is the best procurement option for maintenance contracts. This demonstrates that the respondents have a certain level of doubt whether adopting a target cost contracting approach for maintenance contracts was ideal. About 30% of the respondents shared the opinion that, for target cost contracting, it can only be the best method for maintenance contracts if all parties truly understand and buy into the process.

(Q7) Q7 was an open question that gave the surveyed respondents the option to provide advice on the best procurement option they believe is best suited to adopt when working on a maintenance contracts and also the opportunity to elaborate on their decision. The majority of respondents who answered 'no' in question 6 believed, reimbursable is the best suited opinion (Table 3). Of the 17 who answered 10 (59%) advised the reimbursable approach.

(Q8) 55% of the respondents believed that the maintenance contract with target cost approach that they have worked on were successful, and 45% didn't. This reveals that there is not a clear confidence in the target cost procurement approach for maintenance contracts.

Procurement method	Frequency
Reimbursable	10
Lump sum	2
Other	5

TABLE 03. The first survey's respondents' opinions on the best procurement method from maintenance contracts

(Q9) Majority of respondents (71%) believed that the critical success factors identified by Chan (2010) will differ in maintenance contracts adopting the target Cost approach and fewer respondents (29%) believed that the factors won't change. The respondents had the opportunity to elaborate on their answer which 60% of them did. Accordingly, the factors would differ due to:

1. high volume of works and orders being undertaken.

2. the number of projects within a maintenance project, as it affects the style adopted such as increased amount of admin, requirement of early warning meetings, workability of the agreed rates / norms to achieve a 'win', 'win' scenario when adopting the target cost contracting approach.

(Q10) Of the 33 respondents who completed the survey 62% answered this question with identifying other critical success factors. Table 4 summarizes the 7 newly identified factors that were frequently revealed by the experienced professionals.

A number of respondents highlighted the importance of understanding the amount of administrative work required for maintenance contracts that have adopted the target cost approach due to the number of jobs involved.

--- 4.2. Data obtained from the second survey ---

(Q1 and 2) With regards to respondents' position in their company, the highest frequency of respondents by position was Quantity Surveyors, and equally topping the Directors. Of the 11 Quantity Surveyors 5 were Contractors and 6 were Clients, and of the 11 Directors 8 were contractors, 1 was a client and 2 were consultants.

(Q3 and 4) Table 5 demonstrates that 26 out of the 43 respondents (60% of the respondents) had over 5 years' experience and that all respondents had experience on working with TCC.

	Critical success factors	No. of times mentioned by respondents
1	Correct/accurate (rates/norms) and the ability to review these during the length of the contract	5
2	Good robust system in place for the collection of information such as labour and materials	4
3	Target Cost Contracting carries an element of risk, which should be identified separately and managed accordingly	3
4	Incentive clause within the contract, so that the contractor has an incentive to reduce cost, while being awarded for increasing profit margin	3
5	High accuracy in relation to cost forecasting	3
6	Introduction of continual improvement through collaborative working	2
7	Careful resource planning	2

TABLE 04. Other critical success factors identified in the first survey

Experience	Number of respondents with experience in target cost contracts	Number of respondents with experience in maintenance contracts
Under 1 year	2	1
1-2 years	4	2
2-5 years	10	8
Over 5 years	26	30
No experience	0	1

TABLE 05. The second survey's respondents' experience

(Q 4) Table 5 demonstrates respondents' experience working with maintenance contracts. The highest frequency of responses is 30 (69%), answering they have over 5 years' experience, with the second highest response showing, 8 (18%), had between 2-5 years' experience. This demonstrated that the majority of respondents had a vast amount of experience working with maintenance contracts.

(Q5) With 42 responses to Q5, quantitative data obtained from the questionnaire survey was analysed by applying non-parametric statistics. A mean score was then generated to measure the criticality of the identified success factors for maintenance contracts that adopted the TCC approach (Table 6).

Item	Critical Success Factors for Target Cost in Maintenance Contracts	Mean
1	Understanding the amount of administration work that is required within a maintenance contract.	4.26
2	Well-defined scope of work in client's project brief	4.05
3	Familiarity with and experience of Target Cost Contracting methodology among all contracting parties	3.81
4	Having clear contract procedures in place such as stages/timings	3.95
5	A right selection of project team	4
6	Reasonable share of cost saving and fair risk allocation	3.71
7	Partnering spirit from all contracting parties	3.88
8	Early involvement of the contractor in design development	3.45
9	Proactive main contractor throughout the Target Cost Contracting process	3.88
10	The use of open-book accounting throughout the Target Cost Contracting process	4.12
11	Introduction of early warning meetings	4.12
12	Implementation of set targets within the contract which could affect profit for the contractor such as (KPI)	3.93
13	Correct/accurate (rates/norms) and the ability to review these during the length of the contract	4.45
14	Good robust system in place for the collection of information such as labour and materials	4.36
15	Target Cost Contracting carries an element of risk, which should be identified separately and managed accordingly	4
16	Incentive clause within the contract, so that the contractor has an incentive to reduce cost, while being awarded for increasing profit margin	4.17
17	Introduction of continual improvement through collaborative working	3.5
18	Careful resource planning	4.1
19	High accuracy in relation to cost forecasting	4.31

TABLE 06. Critical success factors for target cost in maintenance contracts

Table 7 shows the top ten critical success factors perceived by the survey respondents. " Correct/accurate (rates/norms) and the ability to review these during the length of the contract" (mean = 4.45) was deemed to be the most critical success factor for target cost in maintenance contracts. The same item was identified by the most respondents in Q10 of the survey 1.

The importance of the item 13 has been explained by one of the respondents as follows: "satisfactory norms are essential in target cost because when the targets are too low, the contractor is in constant "pain share" which is unsustainable in a long term agreement such as multiple small jobs in a maintenance contract. When the targets are too high, the contractor is in constant "gain share", and then the Client wants the "norms" to be adjusted to a more "neutral" position. When the "gain/pain" is in an "acceptable" band, administration / valuation process is not worth the contractor's effort'".

Item (14) 'Good robust system in place for the collection of information such as labor and materials' (mean = 4.36) and Item (19) 'High accuracy in relation to cost forecasting' (mean = 4.31) were respectively ranked second and third. Having a high accuracy in relation to cost forecasting is critical as it promotes confidence, and drives efficiency in the relationship between client and contractor which could also lead to a potential working relationship.

As the majority of this survey's respondents were contractors, this may be the reason for high accuracy in relation to cost forecasting to be deemed as very critical.

The survey respondents were consistent that it was critical that when adopting the target cost approach particularly in maintenance contracts that they were aware of the amount administrative work required. Item (1) 'understanding the amount of administration work that is required within a maintenance contract' (mean = 4.31) has been ranked as the 5th factor.

It is important to highlight that the newly identified top ten ranked critical factors are considerably different to what Chan (2010) considered them to be. This may be because this research particularly concentrated on maintenance projects in particular. Chan (2010)'s study identified 'Reasonable share of cost saving and fair risk allocation' and 'Partnering spirit from all contracting parties' to be the most critical whereas in the current study these factors were ranked as the 17th and 18th. It is important to highlight, they still score reasonably high in this research with mean scorings of (3.71) and (3.88) which is still deemed to be critical.

Overall, based on the questionnaire survey, the key factors driving the success of TCC in maintenance projects can be summarized as follows: correct/accurate rates; high accuracy in relation to cost forecasting; incentive clause within the contact; the use of open-book accounting; understanding the amount of administration; good robust systems.

Item	Critical Success Factors for Target Cost in Maintenance Contracts	Mean
13	Correct/accurate (rates/norms) and the ability to review these during the length of the contract	4.45
14	Good robust system in place for the collection of information such as labour and materials	4.36
19	High accuracy in relation to cost forecasting	4.31
1	Understanding the amount of administration work that is required within a maintenance contract.	4.26
16	Incentive clause within the contract, so that the contractor has an incentive to reduce cost, while being awarded for increasing profit margin	4.17
10	The use of open-book accounting throughout the Target Cost Contracting process	4.12
11	Introduction of early warning meetings	4.12
18	Careful resource planning	4.1
2	Well-defined scope of work in client's project brief	4.05
5	A right selection of project team	4

TABLE 07. Ranking of the 10 most critical success factors for target cost in maintenance contracts

(Rank 1) Reasonable share of cost saving and fair risk allocation (Rank 2) Partnering spirit from all contracting parties (Rank 3) A right selection of project team (Rank 4) Standard form of contract for target cost contracting projects (Rank 5) Well defined scope of work in clients project brief (Rank 6) Early involvement of the contractor at design stage	(Rank 1) Accurate norms and ability to review during length of the contract (Rank 2) Good robust system in place for collection of information (Rank 3) High accuracy in relation to cost forecasting (Rank 4) Understanding the amount of administration work required (Rank 5) Incentive clause within the contract (Rank 6) The use of 'open book accounting'
a) Summary of Chan (2010) research identifying target cost contracting success factors	b) Summary of the critical success factors for maintenance contract adopting the target cost approach

TABLE 08. • Comparison between identified successes factors for maintenance contracts and the construction industry in general

5. CONCLUSION

This paper aimed at identifying the critical success factors for maintenance contracts and in particular those adopting a target cost procurement route. Two online questionnaire surveys have targeted construction professionals experienced in this area.

The target cost approach has been adopted in the engineering and construction sectors throughout the UK and overseas for many years (Broome, et al., 1995). TCC had not only been a popular procurement option specifically in the UK but it had also obtained excellent results in terms of cost reductions, faster programmes and improved quality. It was perceived that clients where choosing the target cost approach because typical traditional methods such as fixed priced lump-sum contracts were becoming far from satisfactory, and in many cases the fixed price was not the same at final account. On the other hand, the target cost approach had gain-share / pain-share methods in place which provided incentives for the contractors to work more efficiently but more importantly save on cost.

A majority of the survey respondents believed that target cost was not the best procurement option and advise that cost reimbursable should be considered.. This is due to the need to reduce the administration burden especially on the contractors side. However, it is important to highlight that the cost reimbursable approach may not be in the clients best interest.

The survey respondents highlighted an additional 7 factors that weren't considered in previous literature. The additional 7 factors identified in this study are:

1. Correct / accurate (rates/norms) and the ability to review these during the length of the contract

2. Good robust system in place for the collection of information such as labor and materials

3. TCC carries an element of risk, which should be identified separately and managed accordingly

4. Incentive clause within the contract, so that the contractor has an incentive to reduce cost, while being awarded for increasing profit margin

5. Introduction of continual improvement through collaborative working

6. Careful resource planning

7. High accuracy in relation to cost forecasting.

This research demonstrated that the success factors may differ within maintenance contracts in particular as per the construction industry as a whole. Figure 8 shows a clear difference in the success factors for maintenance projects compared to the construction industry as a whole.

Future research is recommended to be carried out in exploring maintenance contracts outside of the contraction industry that have adopted the target cost approach, to identify their critical success factors. ◆

• APPENDIX •

APPENDIX 1

--- **Survey 1** --- Exploration of Target Cost Contracting in Maintenance Contracts

Target Cost Contracting in Maintenance Contracts

1. What is your position within your Company?

2. Which would best describe your current Secondment?

Client Contractor

3. What would best describe your experience with Target Cost Contracts?

Under 1 year 2-5 years No Experience

1-2 years Over 5 years

4. What would best describe your experience with Maintenance Contracts?

Under 1 year 2-5 years No Experience

1-2 years Over 5 years

• APPENDIX •

APPENDIX 1

Cont.

5. In the following section could you please rate the identified critical success factors with particular reference to the previous Target Cost Contracting maintenance contract you may have worked on? (1 = strongly disagree 3 = neutral and 5 = strongly agree)

	1	2	3	4	5
Understanding the amount of administration work that is required within a maintenance contract	○	○	○	○	○
Well-defined scope of work in client's project brief	○	○	○	○	○
Familiarity with and experience of Target Cost Contracting methodology amongst all contracting parties	○	○	○	○	○
The importance of having clear contract procedures in place such as stages/timings	○	○	○	○	○
A right selection of project team	○	○	○	○	○
Reasonable share of cost saving and fair risk allocation	○	○	○	○	○
Partnering spirit from all contracting parties	○	○	○	○	○
Early involvement of the contractor in design development	○	○	○	○	○
Proactive main contractor throughout the Target Cost Contracting process	○	○	○	○	○
The use of Open-book accounting throughout the Target Cost Contracting process	○	○	○	○	○

6. Do you feel that Target Cost Contracting is the best suited procurement method for maintenance contracts?

○ Yes ○ No

7. If you answered 'no' to the above question what procurement method do you think is best suited?

○ Reimbursable
○ Lump Sum
○ Other
Other (please specify) _____

8. Would you consider that maintenance contracts you have worked on in the past, that have adopted the Target Cost Contracting Approach have been successful?

○ Yes ○ No Please elaborate _____

9. Do you believe from your previous construction experience that the critical success factors will differ in maintenance contracts when adopting the Target Contracting Approach?

○ Yes ○ No Please elaborate _____

10. From your experience working on Target Cost Contracts in particular Maintenance Projects can you identify any other critical success factors that are not mentioned in question 5?

_____

APPENDIX 2

--- Survey 2 --- Ranking Critical Success Factors for Target Cost Contracting in Maintenance Contracts

Ranking Critical Success Factors for Target Cost Contracting in Maintenance Contracts

1. What is your position within your Company?

_____

2. Which would best describe your current Secondment?

○ Client ○ Consultant
○ Contractor Other (please specify) _____

3. What would best describe your experience with Target Cost Contracts?

○ Under 1 year ○ 2-5 years ○ No Experience
○ 1-2 years ○ Over 5 years

4. What would best describe your experience with Maintenance Contracts?

○ Under 1 year ○ 2-5 years ○ No Experience
○ 1-2 years ○ Over 5 years

5. Please identify the level of criticality, of each of the following factors to the success of Target Cost Contracting in maintenance projects - using the followin ranking scale (1= not critical, 2= slightly critical, 3= moderately critical, 4= very critical and 5= extremely critical)

	1	2	3	4	5
Understanding the amount of administration work that is required within a maintenance contract	○	○	○	○	○
Well-defined scope of work in client's project brief	○	○	○	○	○
Familiarity with and experience of Target Cost Contracting methodology amongst all contracting parties	○	○	○	○	○
Having clear contract procedures in place such as stages/timings	○	○	○	○	○
A right selection of project team	○	○	○	○	○
Reasonable share of cost saving and fair risk allocation	○	○	○	○	○
Partnering spirit from all contracting parties	○	○	○	○	○
Early involvement of the contractor in design development	○	○	○	○	○
Proactive main contractor throughout the Target Cost Contracting process	○	○	○	○	○

6. From your experience working on Target Cost Contracting can you identify any other critical success factors that aren't mentioned in Section 5? If so can you please rank using the same scale used in question 5.

_____

• AUTHORS •

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