What Makes Outsourcing Effective – A Transaction Cost Economics Analysis

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Abstract: The extant supply chain literature applied Transaction Cost Economics (TCE) to determine the choice and benefits of outsourcing. Most of the studies used transaction attributes (e.g., asset specificity, risk) to predict the efficiency of outsourcing and did not offer much implications on the performance of outsourcing. This study extends the discussion of TCE and outsourcing to the selection of governance mechanisms for an effective outsourcing transaction. Specifically, our objective is to provide a better understanding as to *how* firms follow up on their outsourcing decisions to enhance manufacturing competitiveness through the governance mechanism, such as contract and relational adaptation (buyer-supplier cooperation). A TCE-based outsourcing model is developed to depict the relationships among key TCE variables, including transaction attributes (asset specificity, risk, and measurement ambiguity), governance mechanisms (contractual clauses and relationship adaptation), and manufacturing competitiveness. Based on the data collected from 969 manufacturing plants in 17 countries, we found significant meditational effects from contractual clauses and relational adaptation. Firms in our sample rely on either or both types of governance mechanisms to safeguard uncertainties and opportunism inherent in outsourcing, which enhances manufacturing competitiveness. The important managerial and research implication is that, for making an outsourcing decision, it is insufficient to merely examine the transaction attributes without recognizing how various forms of governance mechanisms can be implemented to enhance outsourcing effectiveness.

Keywords: Outsourcing, transaction cost economics, survey

I. Introduction

During the last two decades, outsourcing has become an important source for competitive advantage [3][18][23]. Nonetheless, in their comprehensive review of the outsourcing research literature, Hatonen and Eriksson [12] found the lack of investigation on effective management of existing outsourcing transaction. It is vital that managers have a good understanding of what makes outsourcing effective. In particular, once an outsourcing decision is made, what governance mechanisms can managers implement to sure that both the buyer and the supplier work together as intended to accomplish the outsourcing objective, enhance manufacturing competitiveness?

The objective of this study is to provide a better understanding as to *how* firms follow up on their outsourcing decisions to enhance manufacturing competitiveness through the applications of contractual clauses and relational adaptation. The research premise is that *outsourcing itself does not guarantee success unless proper governance mechanism is instilled to safeguard investments and adapt to uncertainties and opportunism*. This study makes several contributions to the outsourcing and TCE literature. First, it extends the discussion of TCE and outsourcing to the selection and execution of governance mechanisms. A comprehensive TCE-based outsourcing model is developed by treating contractual clauses and relational adaptation as independent variables, as opposed to simply using transaction attributes to predict the efficiency of an outsourcing decision. Next, the extant literature often does not investigate the performance implications of sourcing decisions. The proposed outsourcing model examines the influences of outsourcing on manufacturing competiveness. Finally, this study collects empirical data to further the understanding of current outsourcing practices and test the proposed outsourcing model. The empirical results reveal the adoption of the two selected governance mechanisms and their relative efficacy. For inter-organizational transactions, risks and opportunism arise from various sources, including asset specificity, performance ambiguity, and market uncertainties. The understanding of the relative efficacy of individual governance mechanisms associated with different sources of risks and opportunism should offer valuable guidelines for improving outsourcing effectiveness.

II. Theoretical Development

TCE & SCM

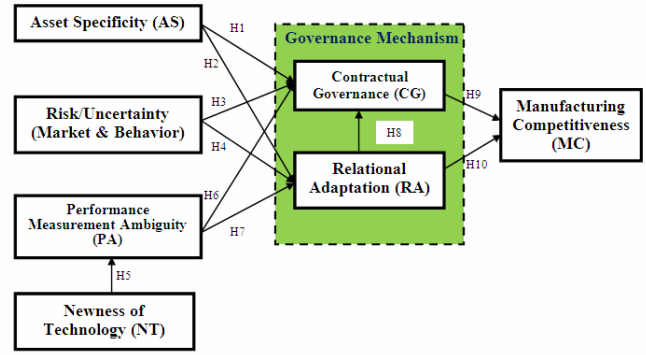
The premise of TCE is to address the question, "Why do organizations exist?" [6]. The framework of TCE is frequently used to determine the proper governance structure of corporate transactions and what activities should be internalized versus purchased [44]. TCE argues that firms select the transaction structure with the lowest transaction cost that effectively protect against partner opportunism, ensure that partners fulfill contractual obligations, and provide a framework for dealing with uncertainties [22][43].

Transaction costs stem from organizing, legal documentation, monitoring inputs and measuring outputs, inaccurate monitoring and measuring, investments in specialized assets, and dividing expected revenues and unforeseen contingencies [22]. Transaction cost is minimized when the form of institutional arrangements is aligned with the transaction attributes, such as asset specificity and risk. Market and hierarchies are two polar modes of institutional arrangements. The market-mode features high-powered incentives, little administrative control and a legal-rules contract law regime [41][42]. In contrast, a fully vertical integration structure, or the hierarchy, applies low-powered incentives, considerable administrative control and the courts are deferential to the management. Business transactions often takes place in a hybrid mode, a compromise mode that is located between market and hierarchy regarding the level of control and the use of contract law regime. The viability of the hybrid may depend on the efficacy of the combinations of safeguards or governance mechanism employed in the transaction.

Often detailed and fixed contracts (with multiple clauses) and relational adaptation serve the purpose of safeguards, which helps to avoid irrational and opportunistic behaviors on the supply side and to offset the risks of dependencies resulting from transaction specificity. Summarizing from Williamson [41][42] and Rindfleisch and Heide [34], Figure 1 displays the framework of TCE regarding the relationships among transaction dimensions/attributes, institutional structure, hybrid forms of governance and control mechanism, and transaction effectiveness. Overall, TCE proposes to choose the most efficient governance structure, supported by some sorts of governance mechanisms, and hence contributes to low exchange costs incurred by the transaction.

The concept of TCE has long been discussed and applied in the fields of strategy, marketing, and organizational behavior. In the OM area, the concept became popular with the advent of supply chain management research [5][10][25][38][44]. Supply chain management is a form of vertical inter-organizational relationships. Any transactions between trading partners are managed without common ownership (complete integration). There is abundant evidence of the value of TCE framework to the SCM research. Most literature either verified the benefits of outsourcing or demonstrated the choice of governance structure (make-buy, joint action, and vertical integration) based on transaction attributes. For instance, Heide and John [13] and Poppo and Zenger [32] suggested business conditions where joint action is the preferred inter-organizational structure. They found that asset specificity and performance ambiguity increases the dependency between transaction parties and opportunism, which in turn discourages outsourcing. McNally & Griflin [26] examined the effects of asset specificity, risk and price emphasis in business transaction on the level of joint action between firms. Rabinovich et al. [33] used TCE to assess the dependence on logistics service providers and found that asset specificity, uncertainty, and performance ambiguity decrease the degree of the reliance. Verwaal et al. [39] verified the negative impact of asset specificity and uncertainty on outsourcing while transaction frequency encourages outsourcing. McIvor [25] suggested the applications of both TCE and resource-based theories for a more complete assessment of outsourcing decision.

Figure 1 Conceptual Model



The TCE literature actually discusses the function of contractual details and relational adaptation as safeguard mechanisms to achieve transaction effectiveness [41][42]. In other words, whether or not an outsourcing decision is effective depends not only on the nature of transaction (e.g., asset specificity) but also on the execution of governance mechanisms to monitor and evaluate the outsourcing activities. The extant outsourcing literature discusses the relationships between the attributes of transaction and governance structure along the market-hierarchy continuum, but such discussion is insufficient to describe / prescribe how various forms of governance mechanism can be implemented to enhance the effectiveness of transaction. Therefore, the research question this study intends to address is as follows.

> Research Question: ***How can firms make their outsourcing effective through choosing and executing hybrid forms of governance mechanism to safeguard their benefits and adapt to uncertainties***?

More precisely, we are interested in examining the role of the two governance mechanisms (contract and relational adaptation) in achieving the effectiveness of existing outsourcing decision.

Conceptual model and research hypotheses

Figure 1 displays a conceptual model that hypothesizes the relationships between key TCE variables, including uncertainty (technological, behavioral, market), asset specificity (supplier investment), contractual clauses (safeguarding), relational adaptation (buyer-supplier cooperation), and manufacturing competitiveness. The

model addresses the research question of what makes an outsourcing decision effective. Built on Handley and Benton's [2] and Rindfleisch and Heide's [34] work, this model considers two primary hybrid governance mechanisms (contractual governance and relational adaptation) as the function of asset specificity, uncertainty, and performance ambiguity [33]. Contractual governance safeguard specific assets and behaviorism by solidifying ex ante agreements with an exchange partner. In contrast, relational adaptation emphasizes on ways to develop closer ties with exchange partners [34]. Note that transaction frequency is not included as a transaction attribute since it is considered to be a less significant factor [34]. The research premise is – given an existing outsourcing transaction, how well firms safeguard and adapt (against uncertainty, performance ambiguity, and asset specificity) would subsequently influence the effectiveness of outsourcing measured by manufacturing competitiveness. We challenge the assumption that proper outsourcing decisions can be made merely based on transaction attributes.

Supplier asset specificity refers to the transferability of supplier investment that supports a given transaction between a firm and the provider of a good or service [42]. Joskow [20] investigated the relationship between asset specificity and the length of contracts. When supplier asset specificity increases, the supplier is more vulnerable to holdup in future transaction because of dedicated assets. In the meantime, the buyer is also vulnerable to holdup because of switching costs [19][33]. In other words, transaction-specific investments give rise to a safeguarding problem and mechanisms must be provided to minimize the risk of subsequent opportunistic exploitation [42]. As a result, when specificity increases, both sides may rely on establishing certain contract terms to reduce holdup risk. Similarly, specific investments would increase the commitment to the relationship [1]. Therefore, asset specificity could potential increases the level of informal interactions engaged by buyer and supplier. Accordingly, the following hypotheses are proposed.

H1: There is a positive relationship between supplier asset specificity and the use of contractual governance for safeguarding.

H2: There is a positive relationship between supplier asset specificity and the use of relational adaptation for safeguarding.

Uncertainty results from unexpected variation in circumstances surrounding the transaction. It may include a lack of knowledge about the demand, technology, behavior or providers' performance. When aspects of transactions are highly uncertain, firms face adaptation and information processing problem. A buyer will face safeguarding costs such as the expenditures incurred in fully specifying in advance and continually adjusting to changes. To the extent that the relevant contingencies are too numerous or unpredictable to be specified *ex ante* in a contract, an *adaptation* problem exists [4][35] and mechanisms must be put in place to permit adjustments to be made as events unfold. More precisely, a buyer could include certain clauses in the contract to prevent its supplier from being opportunistic [9]. Since there are limits to the extent of uncertainty that can be managed through formal contractual clauses, firms could choose to rely on mutual cooperation to improve transaction effectiveness [15][10][33]. In summary, uncertainty increases the use of both contract and adaptation in inter-organizational transactions, which supports the development of the following hypotheses.

H3: There is a positive relationship between uncertainty and the use of contractual governance

H4: There is a positive relationship between uncertainty and the engagement of relational adaptation

The newness of the technology may drive the performance measurement complexity and ambiguity (H5). Ouchi [29] asserted that high levels of performance ambiguity require output-based measures be supplemented with control mechanisms. The degree of measurement ambiguity influences the design of governance structure including contractual clauses and cooperative adaptation. In other words, as performance ambiguity increases, firms' ability to write complete contracts deteriorates [2][11][17]. To reduce the problem of opportunism, firms must not only rely on contractual terms, but also execute cooperation for safeguarding [14][16]. Therefore, the less exact the performance specification, the greater the need for control (H6) and adaptation (H7). If the contract is not detailed, there is a need for buyers to safeguard their interests. Consequently, we posit the following hypotheses.

H5: There is a positive relationship between newness of technology and performance measurement ambiguity

H6: There is a positive relationship between performance measurement ambiguity and contractual governance

H7: There is a positive relationship between performance measurement ambiguity and relational adaptation

Several studies suggested that relational adaptation serves as a substitute for formal contracts and control [28][31]. The informal agreement for sharing information, solving problems and reducing opportunism reduces the need for costly contractual safeguard. Moreover, both contractual governance and relational adaptation safeguard uncertainties and opportunism and thereby enhance outsourcing performance. Effective contracting practices could make outsourcing outcome more predictable and mitigate the risk associated with opportunism [32]. The better control and

coordination provisions from contractual governance would then lead to better outsourcing performance. Similarly, several studies asserted that the buyer-supplier cooperation such as information sharing and joint problem solving provides necessary flexibility to curtail uncertainties and opportunism, which makes a firm more competitive [7][8].

Rindfleisch and Heide [34] and Grover and Malhotra [10] asserted most TCE studies failed to demonstrate TCE's performance implications. Hatonen and Eriksson [12] suggested that research should focus on the impact outsourcing has on a firm's ability to compete. The performance criterion of TCE is often narrowly limited to just the costs and not the benefits from the transaction. From a strict economic perspective, transaction costs could include negative opportunity costs to represent the benefits of the transaction. The benefit of outsourcing transactions is derived from the buyer better utilizing its resources, which leads to higher competitiveness performance. Since the benefits are realized from the execution of contract with the support of informal buyer-supplier cooperation, they are considered as endogenous variables determined by the governance mechanism. Accordingly, we hypothesize that the increase use of the contract and supplier-buyer cooperation will be positively related to overall competitive performance.

H8: There is a negative relationship between relational adaptation and contractual safeguard

H9: There is a positive relationship between contractual governance and manufacturing competitiveness performance

H10: There is a positive relationship between relational adaptation and manufacturing competitiveness performance

III. Research Methodology

Samples & measures

The data were gathered by the Global Manufacturing Research Group (GMRG). GMRG is a multinational community of researchers studying the improvement of manufacturing practices worldwide (www.gmrg.org). The GMRG consists of leading international academic researchers from over twenty countries who developed the GMRG database survey instrument for use around the world. This survey facilitates a global comparison of the effectiveness of manufacturing practices [40]. Since 1985, the GMRG has conducted four rounds of worldwide surveys that have been utilized in other strategy studies [24][27][36][37]. The questionnaires were translated and back-translated for all countries by several academics. This study used the data from the Round 4.0 Survey with 969 samples from 17 countries (Table 1)

Table 1 Samples

Country	n	Country	n
(1) Albania	15	(11) South Korea	115
(2) Australia	30	(12) Macedonia	39
(3) Austria	17	(13) Mexico	99
(4) China	52	(14) Poland	57
(5) Croatia	82	(15) Sweden	32
(6) Fiji	110	(16) Switzerland	31
(7) Germany	59	(17) Taiwan	50
(8) Ghana	63	**Total**	**969**
(9) Hungary	53		
(10) Italy	54		

Seven sets of constructs and measures are developed to test the research hypotheses. They are Asset Specificity (AS), Risk, Performance Ambiguity (PA), Newness of Technology (NT), Contractual Governance (CG), Relational Adaptation (RA), and Manufacturing Competitiveness (MC). With the exceptions of Asset Specificity, Measurement Ambiguity and Newness of Technology, all other latent variables were measured by multiple items. The scale for Risk assesses the level of uncertainties associated with the market, technology and behaviorism. The CG scale assesses the likelihood of including and enforcing contractual clauses to protect from termination, quality problems, and late delivery. The RA scale measures the commitment both sides make to solving problems, remaining flexible with solving quality issues, and relying on implicit agreements to work out details not included in the formal contract. AS measures the level of "the supplier's investment in physical assets and/or processes to meet the buyer's unique needs". PA is the level of difficulty in determining the supplier's performance. NT is the percentage of the supplier's products is developed by recent technology.

The scale for MC has respondents rate their competitiveness as compared to their major industry competitors [21]. It captures the four main dimensions of manufacturing competitiveness cost, quality, flexibility, and delivery. The scale was verified by previous GMRG studies [24][30][40].

IV. SEM Analysis and Results

Full and partial mediation model

The SEM results of the full mediation model were presented in Table 2. The overall fit indices of the model are $\chi^2_{(122)} = 545.49$, RMSEA =.059; CFI = 0.92; NFI = 0.91; GFI = .94, and they are within acceptable scope, suggesting that the model was a good fit to the data.

The statistical results lend support for H1and H2 that asset specificity (AS) increases the use of both contractual governance (CG) and relational adaptation (RA) to safeguard the supplier's investment. Both CG and RA help to avoid irrational and opportunistic behaviors because of the dependencies resulting from transaction specificity. Our samples also rely on legal contract to curtail early contract

termination, late delivery, and poor quality performance due to behavioral and market risks. H3 is supported. To our surprise, market and behavioral risks have insignificant negative relationship with buyer-supplier cooperation (RA). H4 is not supported. This finding verifies Williamson's argument [44] that detailed and fixed contracts (with multiple clauses) serve the purpose of safeguards.

As expected, newness of technology (NT) apparently creates difficulties to measure supplier performance (PA), supporting H5. Interestingly, performance ambiguity does not increase the use of contractual governance. Instead, our samples resort to informal and mutual cooperation to solve problems from measurement ambiguity. H7 is supported but not H6. The results indicate that not all uncertainties can be detailed in the contract and informal adaptation is a necessary ingredient to deal with the gray area of an outsourcing transaction.

Table 2 SEM Results

Path (Hypothesis)	Full Mediation		Partial Mediation	
	Std. parameter estimate (t-value)	Significance	Std. parameter estimate (t-value)	Significance
AS → CG (H1)	.27 (6.03)	Supported **	.27 (6.06)	Supported **
AS → RA)H2)	.27 (6.37)	Supported **	.26 (6.25)	Supported **
Risk → CG (H3)	.15 (3.21)	supported **	.16 (3.43)	supported **
Risk → RA (H4)	-.15 (-3.06)	supported **	-.13 (-2.64)	supported **
NT → PA (H5)	.09 (2.69)	supported **	.09 (2.69)	supported **
PA → CG (H6)	.03 (.53)	not supported	.03 (.63)	not supported
PA → RA (H7)	.49 (10.33)	supported **	.49 (10.42)	supported **
RA → CG (H8)	.12 (1.84)	not supported	.12 (1.83)	not supported
CG → MC (H9)	.18 (4.19)	supported **	.23 (4.52)	supported **
RA → MC (H10)	.18 (3.84)	supported *	.13 (2.03)	supported *
AS → MC (added)	NA	Insignificant	.03 (.80)	Insignificant
Risk → MC (added)	NA	Significant	-.18 (-3.87)	Significant
PA → MC (added)	NA	Insignificant	-.03 (-.74)	Insignificant
Fit indices	Chi-square/df = 545.49/122, RMSEA = .059 (0.054 ; 0.065); CFI = 0.92; NFI = 0.90; GFI = .94		Chi-square/df = 529.77/119, RMSEA = .059 (0.054 ; 0.064); CFI = 0.92; NFI = 0.90; GFI = .94	

Another surprising finding is the insignificant relationship between relational adaptation and contract governance, and H8 is not supported. The mutual trust and collaboration have no significant impact on using contractual clauses for safeguarding. Finally, as expected, both contract and adaptation improve manufacturing competitiveness, supporting H9 and H10. Both governance mechanisms appear to have significant direct effects on performance, which implies that they could indirectly influence the effects of transaction attributes.

Adding the direct links AR →MC, Risk →MC and PA → MC to the full mediation model creates a partial mediation model with $\chi^2_{(119)} = 529.77$. The model specifications, goodness-of-fit statistics and path coefficients of the partial mediation model are summarized in Table 7. All the fit indices and the significance of paths are virtually identical with the first model. The χ^2 difference ($\Delta\chi^2_{(3)} = 545.49 – 529.77 = 15.72$) between the two models is statistically significant (the critical $\chi^2_{(3)}$ value is 11.3 for $p < ,01$). Accordingly, we reject the null hypothesis, suggesting that not all direct effect paths between exogenous variables and manufacturing competitiveness are zero. Therefore, the second model (partial mediation) is a more fitting model to describe the relationships among all variables.

Table 3 Analysis of Total & Indirect Effects

Path (Transaction attributes to Manufacturing competitiveness)	Total Effect[1]	Direct Effect[1]	Indirect Effect[1]
AS → MC	.13**	.03	.10** =[.27 ÷.26(.12)](.21) ÷.26(.13) **Decomposition** CG: AS →CG→MC & AS→RA→CG→MC; RA: AS→RA→MC
Risk → MC	-.16**	-.18**	.02 =[.16 ÷(.13)(.12)](.21) ÷(-.13)(.13) **Decomposition** CG: Risk →CG→MC & Risk→RA→CG→MC RA: Risk→RA→MC &)
PA → MC	.05	-.03	.08** =[.03÷.49(.12)](.21) ÷.49(.13) **Decomposition** CG: PA →CG→MC & PA→RA→CG→MC RA: PA→RA→MC

Mediation effect of governance mechanism

Table 3 summarizes the total and indirect effects of asset specificity (AS), behavioral and market risk (Risk), and performance measurement ambiguity (PA). For all transaction attribute variables, their total effects on manufacturing competitiveness (MC) are greater than their direct effects. In other words, their indirect effects from the execution of contract and cooperation display positive influences on transaction performance. Take the AS variable as an example, its direct effect on performance is .03 (statistically insignificant). Meanwhile, AS increases the use of contractual governance (standardized coefficient = .27) and cooperation (.26), and both have positive influence on transaction performance (.21 and .13). The indirect effect of asset specificity from both contract and cooperation is .10 ($p < .01$), which in turn increases the total effect to .03 + .10 or .13 ($p < .01$). Therefore, the governance mechanism, CG and RA, is essentially a full mediator for the impact of AS on MC. In other words, while asset specificity itself does not have significant influence on manufacturing competitiveness, the practices of contractual clauses and relational adaptation would indirectly and significantly reinforce the effects of asset specificity on transaction performance.

Similar observations were made in the case of the other two exogenous variables. The negative effect of market and behavioral risks were reduced from -.18 to -.16 (both are significant at $p < .01$) with the indirect effect of .02 from governance mechanism. The influence of performance measurement ambiguity on manufacturing competitiveness turns positive into a positive .05 ($p < .05$), after incorporating its indirect effect from governance mechanism. It appears that governance mechanism significantly mitigates problems arising from the difficulties of assessing supplier performance. Overall, the indirect effect that all transaction attributes received from the contract and cooperation help to improve their influence (total effects) on manufacturing competitiveness. As a result, two of the three transaction attributes have statistically significant total

effects on manufacturing competitiveness. Evidently, governance mechanism mediates the effectiveness of outsourcing transactions.

V. Discussion and Conclusions

What makes outsourcing effective? Previous TCE studies primarily consider transaction attributes to determine whether outsourcing should be done. The mediation effect of governance mechanism is never properly investigated. Out statistical results reveal that, among three transaction attributes, risk is the only factor that has significant direct influence on outsourcing performance, measured as manufacturing competitiveness. Nonetheless, governance mechanism, contractual governance and relational adaptation, mediates the effect of all three transaction attributes. In general, both contractual terms and cooperative adaptation seem to provide effective safeguard against uncertainty, asset specificity and performance ambiguity, which ultimately lead to more effective transactions and higher competitiveness. In the aggregate level, the results indicate that it is insufficient to make outsourcing decisions merely examining asset specificity, risk, and measurement difficulties without taking the effects of governance mechanism into consideration. The market-hierarchy continuum obscures different forms in which outsourcing transactions can be organized. A carefully structured governance mechanism, a combination of contractual clauses and the buyer-supplier cooperation, leads to higher outsourcing effectiveness.

While the governance mechanism has significant mediation effect, we found that, with the exception of asset specificity, contractual governance and relational adaptation are not equally effective to safeguard opportunism and uncertainties. Trading parties seem to actively engage in contractual clauses and informal cooperation to protect special supplier investment. Our sample firms rely on informal agreements and mutual trust to deal with measurement difficulties rather than a detailed contract. This is consistent with previous studies [15].

Finally, risk requires contractual safeguard to achieve effective outsourcing. Nonetheless, our samples do not increase their informal cooperation with suppliers to mitigate market and behavioral risks. In fact, they even reduce the level of adaptation in response to the increase of risk. It could be explained as risk increases, there is more distrust (possibly due to the blame for the risk) causing less informal cooperation. During a post-survey interview, a plant manager in China expressed his disappointment with how his supplier cancelled orders without prior communication. Disgusted by the supplier's action, the plant manager called off several meetings and reduced the level of interaction with the supplier. It appears when the supplier exhibits behaviorism in the existing business relationship, distrust develops and firms choose to curtail informal cooperation but simply rely on formal contract to manage the outsourcing. Regardless of the real causes of reduced adaptation, our results indicate that firms are missing the great opportunity of improving transaction effectiveness. There are many studies proving the benefits of informal problem solving and mutual trust. The partial mediation model seems to provide a valid framework to assess the value of developing partnership and trust between them, which is a very important aspect of outsourcing research that has not been properly addressed [10][12].

References

Available upon request.

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