

Safety Culture as an Idiosyncratic Resource for a Construction Firm's Sustainable Competitive Advantage

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Abstract

A mature and resilient safety culture often turns into a strategic idiosyncratic value creating resource that edifies a construction firm's sustainable competitive advantage. A mature and resilient safety culture enhances the minimisation of costs, and the improvement of productivity, quality, and public trust and confidence. All these translate into cost advantages, differentiation of a firm from rivals and improved customer focus. Unfortunately, the research on how an entrenched safety culture turns into an idiosyncratic resource to edify a construction firm's sustainable competitive advantage seems to have not yet been widely explored by most studies. This research investigated the sustainable competitive advantage effects of safety culture, its major inhibitors as an idiosyncratic resource and the model that can be suggested. Using a qualitative exploratory study, in-depth interviews were conducted with twenty participants comprising of the managers, site supervisors and the ordinary employees from ten judgmentally sampled construction firms. Although findings revealed a resilient safety culture to translate into an idiosyncratic resource that edifies competitiveness, most of the construction firms were found to face constraints linked to their largely reactive and compliant safety management systems. The study adds a new theory onto the existing wealth of knowledge on safety culture by suggesting a hybrid model that the construction firms can adopt in the process of nurturing safety culture as a strategic idiosyncratic value creating resource. The study will impact on the improvement of the construction firm's better safety practices and behaviours that can subsequently turn into inimitable sources of sustainable competitive advantage.

Keywords: construction firm; idiosyncratic resource; safety culture; sustainable competitive advantage

INTRODUCTION

If its evolution is well managed and developed up to the maturity and resilient stage, safety culture can turn into an idiosyncratic resource that edifies a construction firm's sustainable competitive advantage (Sellers, 2014; Westrum, 1993). It can easily translate into a largely unique, rare, inimitable and non-substitutable strategic value creating resource that influences a firm's sustainable competitiveness on the basis of cost, differentiation and focus (Anastacio, Goncalves, Andrade and Marinho, 2010). Such a view is implicitly echoed in most of the studies conducted on safety culture in the South African construction industry (Agumba and Haupt, 2009; Construction Industry Development Board, 2013). In these studies, most authors argue that safety culture enhances the minimisation of costs and risks, employee morale and productivity (Ezzat, 2012; Smallwood, Haupt and Shakantu, 2014).

However, as most of the studies approach safety culture research on the basis of safety and health improvement perspectives, only limited efforts seem to have been directed towards the assessment of how an entrenched safety culture turns into an idiosyncratic resource that

edifies competitiveness (Bandura, 1986; Cesarini, Hall and Kupiec, 2013; Zhang and Gao, 2012). This research fills such a gap by initiating the debate on how in the increasingly competitive construction industry, construction firms can easily gain sustainable competitive advantages from their unique safety cultures. Through such analysis, the study aims to identify the major constraints and the remedial framework for developing a safety culture as a strategic idiosyncratic value creating resource that edifies a construction firm's sustainable competitive advantage.

LITERATURE REVIEW

The argument that an entrenched safety culture often translates into an idiosyncratic resource to edify a construction firm's competitiveness is implicitly accentuated in most of the theories on safety culture and a firm's competitiveness (Barney, 1991; Barney, Ketchen and Wright, 2011; Ostrom, Wilhelmsen and Kaplan, 1993; Zou and Sunindijo, 2010).

Safety Culture

Safety culture is a mundane underlying strongly shared beliefs, values, competencies, behaviours, practices and

perception on how the situations and factors that expose the employees and property, and the surrounding communities to the risks of harm or damage are effectively identified and avoided all the time (Zou and Sunindijo, 2010). Such a definition implies the employees and managers are at the centre of safety management and improvement initiatives. However, Zou and Sunindijo (2010) echo Ostrom et al.'s (1993) argument that in construction management, safety culture is often influenced by certain three dimensional factors (psychological, behavioural and corporate), and four parts (cause, contents, measurement and consequences). It implies the common causes of accidents and incidents are linked to human (errors, the deliberate flouting of safety rules and poorly developed safety competencies), technical (machine-breakdown, faults and poor maintenance) and management factors (lack of a safety management system, poor investment in safety competencies, motivation and rewarding good safety behaviours) (Hosseinian and Torghabeh, 2012; Hudson, 2003). It is from these effects of accidents and incidents that a poor safety culture can undermine the competitiveness of an enterprise.

Accidents and injuries impact directly and indirectly on the operational costs of a construction firm (Hosseinian and Torghabeh, 2012). The direct cost effects are often linked to compensation for the dead or the injured employees, medical expenses, and civil liability damages for the loss of property and litigation costs. Indirect cost of accidents and incidents are related to the administration time, damage to reputation, the cost of public relations, damage to equipment and facilities, investigation and implementation of corrective measures, delay of project implementation, and loss of customer trust and confidence (Hosseinian and Torghabeh, 2012). These imply that the establishment of an effective safety management system is a prerequisite for minimising accidents and incidents so as to avoid such damaging effects (Ridly and Channing, 2012; Stranks, 2012). The process for the development of such a safety management system requires the application of four main steps; the evaluation of the organisational safety culture, the development of safety policies, procedures and standards, improving safety competencies, measurement of the level of safety culture maturity, and undertaking the necessary corrective and safety improvement strategies (Ridly and Channing, 2012; Stranks, 2012).

To gauge the maturity of the organisation's safety culture, Fleming and Lardner (1999) use a three stages safety culture analysis framework that emphasises the analysis of the organisation's safety culture according to three stages; dependent, independent and

interdependent. The dependent stage arises from the strong control and supervision that the management exercises to foster compliance with safety rules and standards (Fleming & Lardner, 1999; Ridly and Channing, 2012; Stranks, 2012). For safety culture to evolve to the independent stage, organisations must invest in the improvement of safety competencies through training and development (Fleming & Lardner, 1999; Ridly and Channing, 2012; Stranks, 2012). It will also entail the usage of rewards and recognitions of the consistently good safety behaviours and practices. These influence the evolution of safety culture to the interdependent stage in which there is a strong team work and collaboration between different work teams to ensure that risks leading to accidents and incidents are identified and mitigated (Fleming and Lardner, 1999; Ridly and Channing, 2012; Stranks, 2012).

However, the University of Queensland's (the Minerals Industry Risk Management Maturity Chart-MIRM) (2008) posits the development of a safety culture maturity to undergo five main rungs; vulnerable, reactive, compliant, proactive and resilient. Whereas in the vulnerable rung, the management and the organisation accepts that accidents and incidents are the normal work processes, in the reactive stage, there is a concern that some safety precautions must be undertaken to prevent similar accidents and incidents from occurring in the future (Jha, 2011; MIRM, 2008; Ridly and Channing, 2012; Stranks, 2012). This evolves to the compliant stage in which the management puts in place the necessary safety policies, procedures and standards (Jha, 2011; MIRM, 2008; Ridly and Channing, 2012; Stranks, 2012). Further management commitment leads to the development of a proactive safety management system and subsequently a resilient stage where all the organisation's safety management systems are well-established to minimise the identified and the unidentified sudden risks (Jha, 2011; MIRM, 2008; Ridly and Channing, 2012; Stranks, 2012). It is at the maturity and resilient stages that effective safety management induces a strong safety culture that creates one of the core unique internal resources that influence the competitiveness of a construction firm (Anastacio et al. 2010).

Competitive Advantage

A firm's competitiveness is also sometimes known as a competitive advantage (Banterle, Carraresi and Cavaliere, 2011; Nedergaard and Griffith, 2011; Porter, 1986). It connotes the extent to which in a perfect market condition, a firm is able to perform at a superior level that cannot easily be matched by its rivals. In his three genetic competitive frameworks, Porter (1986) argues that firms attain competitive advantage through

benefits linked to significant cost reductions, differentiation and focus. Cost advantages arise from the investment in the strategies that improve efficiency, reduce waste, optimise the limited resources, and streamline the flow of goods along the value chains (Banterle et al. 2011; Nedergaard and Griffith, 2011; Porter, 1986). Differentiation is the strategic process of offering products and services, or using operational processes and methods that attractively distinguish the firm from its main rivals (Banterle et al. 2011; Nedergaard & Griffith, 2011; Porter, 1986). Focus entails the application of the principles of customer centricity to facilitate an integrated response to the customers' needs using all the four Ps that encompass product, price, place and promotion (Banterle et al. 2011; Nedergaard and Griffith, 2011; Porter, 1986). However, it is argued in the resource-based theory that such competitive advantages can only be sustainable if a firm's strategic value creating resources providing cost, differentiation and focus advantages cannot easily be replicated by rivals (Barney, 1991; Barney et al. 2011).

A firm's value creating resources often comprises of certain tangible and intangible resources (Barney, 1991; Barney et al. 2011). Tangible resources may include machineries, equipments, financial resources, inputs, finished and unfinished materials, labour and physical locations (Barney, 1991; Barney et al. 2011). Intangible resources are linked to skills, stock, business relationships, intellectual property and patterns, unique operational methods, cultures, processes and techniques, management style and leadership (Barney, 1991; Barney et al. 2011). In construction management, safety culture is therefore one of the critical unique strategic value creating resources. However, considering the constantly changing business environment, Teece (2007) posits in his seminal paper titled: "*Explicating the Dynamic Capabilities of an Enterprise*" that no competitive advantage is sustainable, unless a firm's strategic value resources are constantly modified and reconfigured to respond to the newly emerging changes. Despite the differences in the views expressed in different sources of competitive advantage theories, it is quite evident that effective safety culture management provides one of the main internal capabilities of the

construction firms that enable them to reduce costs, differentiate themselves from rivals and effectively meet the needs of their customers (Barney, 1991; Barney et al. 2011).

Such a view seems to echo the argument in the theoretical framework in Figure 1 that theories imply that as safety culture evolves to the proactive and resilient stage (the managers and employees demonstrate willful and collaborative commitment across the organisation and its business partners to accomplish all activities at all the time to minimise risks of incidents and accidents), it tends to generate enormous business values (Bandura, 1986; Cesarini et al. 2013; Zhang and Gao, 2012). These business values are often linked to reduced costs and risks, improved efficiency, employee morale, productivity, improved quality, customer trust and confidence, and the optimisation of equipment's lifetime (Bandura, 1986; Cesarini et al. 2013; Zhang and Gao, 2012). If the construction firm remains consistently resilient in its safety management approach, these enormous safety culture's business values translate into the sources of a firm's three-generic competitive strategies (cost leadership, differentiation and focus), and subsequently the emergence of the idiosyncratic resources that create the basis for a firm's sustainable competitive advantage (Banterle et al. 2011; Nedergaard and Griffith, 2011; Porter, 1986). Despite such interpretation, it is evident from theories that a conceptual framework that coherently highlights the linkage between safety culture and the improvement of the competitiveness of the construction firm still remains largely lacking.

It is lacking not only in most of the recent theories, but also in the findings of the studies conducted on the safety culture of the construction firms in South Africa (Ezzat, 2012; Smallwood et al. 2014). It is on that basis that this research evaluates how the safety behaviours and practices of the construction firms in South Africa have turned into the idiosyncratic resource that edifies their sustainable competitiveness. It is also such a problem that motivates this research.

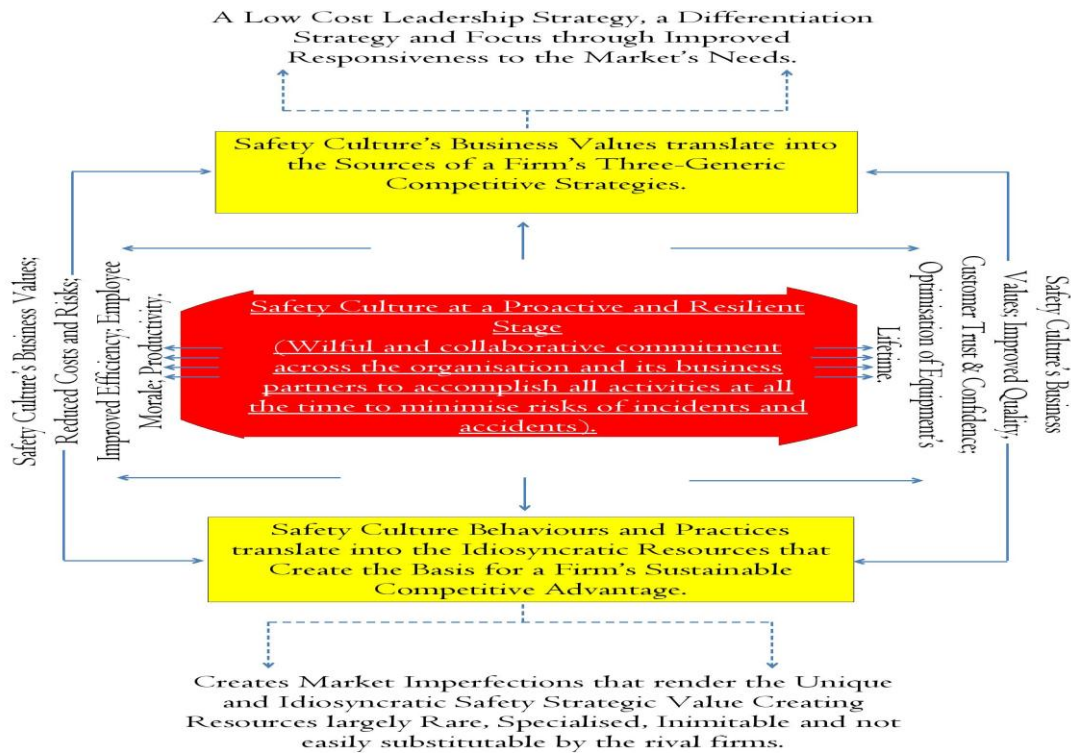


Figure 1: Theoretical Framework: Linkage of Safety Culture as an Idiosyncratic Resource to Firm's Competitive Advantage.

Source: Safety Culture Theories (Cheyne, Cox, Oliver and Tomas, 1998) to Porter's (1986) Three-Generic Competitive Strategies and Barney's (1991) Resource-based Theory.

STATEMENT OF THE PROBLEM

Limiting safety culture research to the mere highlighting of its safety and health implications affects the voluntary emphasis of a strong safety culture by most of the construction firms as an idiosyncratic resource that edifies competitiveness.

PURPOSE OF THE RESEARCH

The main purpose of this research was to investigate the effects of safety culture on the sustainable competitive advantage of the construction firms in South Africa, so as to identify the major inhibitors and the model that can be suggested.

METHODOLOGY

While using an exploratory qualitative research method, the study applied interviews as the principal qualitative research technique in a bid to seek answers to the three critical research questions that entailed the evaluation of (Morse 2010); the sustainable competitive advantage effects of safety culture, the major inhibitors of developing safety culture as an idiosyncratic resource and the model that the construction firms can adopt in the process of developing safety culture as a strategic idiosyncratic value creating resource. The interviews involved twenty participants that were drawn using

judgmental sampling from ten construction firms that were also in turn selected using judgmental sampling. The criteria used, required the construction firm to be based in Gauteng, but with branches throughout the nine provinces of South Africa. The criteria also required the participants available for the interviews to have been personnel who were either managers, site managers, supervisors or ordinary employees with sufficient knowledge of the safety management systems in that particular construction firm. Prior to the commencement of the interviews, short conversations were held with the participants to establish compliance with these criteria. Interviews examined; whether the participants recognise and understand the significant business values linked to safety culture, whether they recognise that effective safety culture can enhance the sustainable competitive advantage of their construction firms. If so, the participants were requested to elaborate on the measures that they have undertaken to develop their safety culture as an idiosyncratic resource, and the major challenges that they usually face in the development of their safety cultures as idiosyncratic resources. Finally, the views of the participants were solicited on whether they are satisfied that the safety culture models that they are presently using are effective as a critical determinant of their construction firms' sustainable competitiveness. If

not, they were further asked to explain the ideal safety culture development model that they would cherish to have. The obtained interview data was thematically analysed and the findings were as presented and discussed in the next section.

FINDINGS

While using the theoretical framework in Figure1, the results of the thematic content analysis of the interview findings were as presented and discussed in this section according to two subsections:

- Competitive Advantages derived from Safety Culture as a Construction Firm's Idiosyncratic Resource
- Limitations: Safety Culture as an Idiosyncratic Resource for a Construction Firm's Competitive Advantages

The details are as follows.

Competitive Advantages derived from Safety Culture as a Construction Firm's Idiosyncratic Resource

Despite limitations, it is noted in Figure 2 that it emerged from the analysis of the interview findings that the entrenchment of an effective construction safety culture induces business values that edify the competitiveness of the construction firm on the basis of costs, differentiation and focus.

- Cost

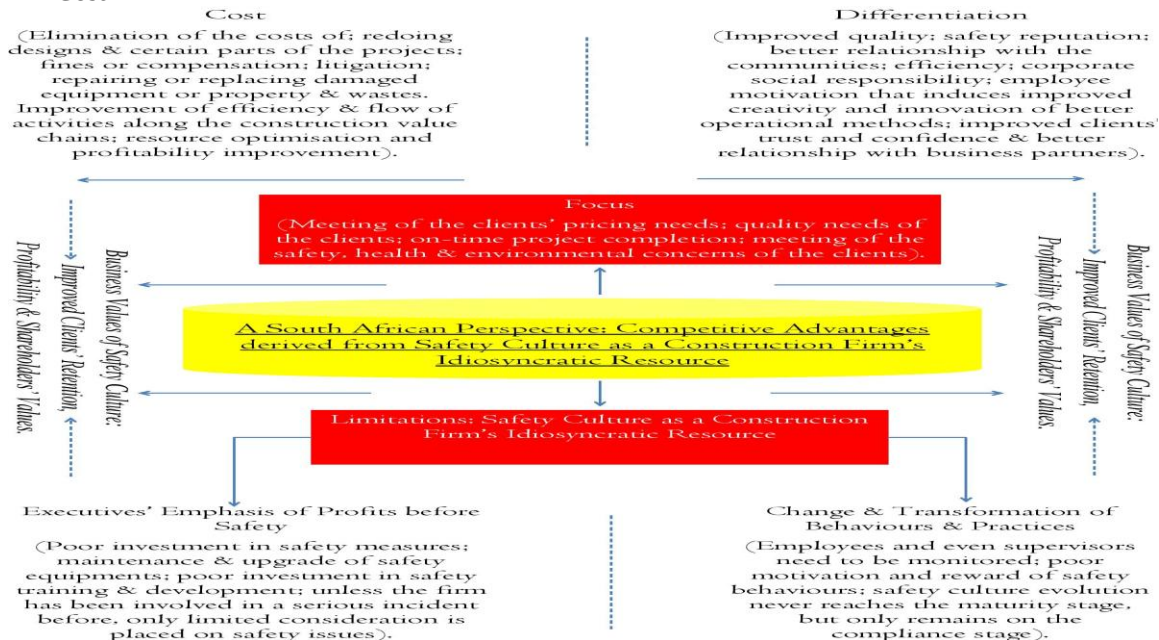


Figure 2: Key-themes and Subthemes: South African Perspective-Competitive Advantages derived from Safety Culture as a Construction Firm's Idiosyncratic Resource.

Source: As derived from the thematic content analysis of the interview findings on Competitive Advantages derived from Safety Culture as a Construction Firm's Idiosyncratic Resource.

The other cost advantages arise from the elimination of the costs of litigation in case of disputes about the causes of accidents or incidents, the reduction of the costs of repairing or replacing damaged equipment and property, and the elimination of wastes associated with the damaged property. The positive results of all these are often reflected in the improvement of efficiency and flow of activities along the construction value chains. It also edifies the improvement of resource optimisation and subsequently cost advantages that a construction firm is exposed to. For the construction firms that also strongly emphasise the importance of integrating safety management systems in the construction process, it was found that they tend to experience the extent to which they are able to distinguish themselves from the competitors.

- **Differentiation**

Due to consistent good construction safety practices, most of the participants stated that the construction firms that they work with have been able to distinguish themselves from competitors. This is often reflected in the positive feedbacks from clients and further contracts that the clients are willing to offer without much hustle. However, in instances where a firm was found to engage in unsafe behaviours and practices, findings indicated that such firms often struggle to get other contracts due to the declining trust and confidence that clients have about them to safely accomplish the required projects. Safety culture influences the client retention rates because it contributes enormously towards the improvement of the quality of the construction projects, and good safety reputation and better relationship with the communities. Most of the construction firms that deeply embrace a safety culture also tend to differentiate themselves from rivals through improved corporate social responsibility. Corporate social responsibility of the construction firms enhances the minimisation of damage, environmental harm and health risks on the communities, and employee motivation that edifies the creativity and innovation of better operational methods. All these tend to position the construction firm differently among its peers in the building and construction industry. It is on that basis that safety culture influences the competitiveness of a construction firm on the basis of differentiation. As safety culture edifies the competitiveness of the construction firm on the basis of cost and differentiation advantages, it also tends to edify a firm's competitiveness on the basis of focus.

- **Focus**

In building and construction projects, safety is one of the core needs of the clients. Accidents or incidents are noted therefore to not only be costly to clients, but also to inconvenience them. In that regard, a construction firm that accomplishes all the construction projects

more safely was found to effectively meet the core needs of its clients, and influence the increment of their retention in case of future contracts. This contrasts with the construction firms whose activities are punctuated by accidents and incidents. As the construction firm emphasises a strong safety culture, the interview findings revealed that its positive implications are often latent in the effective meeting of the quality needs of the clients, on time project completion as required by the clients, and effective meeting of the safety, health and environmental concerns of the clients. The entrenchment of a construction safety culture not only improves the customer centricity of a construction firm, but an effective meeting of the clients' pricing needs. This is attributable to the fact that through the reduction of operational costs, construction firms are able to lower their construction bill of costs for even the projects of premium values.

Although most of the construction firms confirmed that the entrenchment of a culture of safety edifies the competitiveness of a construction firm on the basis of cost, differentiation and focus, most of the construction firms were still found to face a lot of challenges in seeking to develop and entrench an effective construction safety culture.

Limitations: Safety Culture as an Idiosyncratic Resource for a Construction Firm's Competitive Advantages

As it is indicated in Figure 2, findings revealed the limitations of safety culture as an idiosyncratic resource of a construction firm's competitive advantages to be linked to the executives' emphasis of profits before safety, and change and transformation of behaviours and practices. The details are examined as follows.

- **Executives' Emphasis of Profits before Safety**

Unless safety is strongly emphasised and enforced as an inherent part of the process for the accomplishment of a particular activity, most of the participants revealed that it often turns difficult for the executives to invest in all safety enhancing measures. Instead, in such circumstances, the executives were found to only consider improving critical safety features and work around the rules and procedures to minimise less critical safety issues. The motive of such approach was noted to be to save costs and improve on the profitability of the construction firm. As the executives use such approach, the executives tend to only selectively invest in certain safety equipments. They also only opt to maintain and upgrade only certain safety equipments and selectively undertake certain safety training and development. Unless the firm has been involved in a serious incident before, findings revealed that some of the construction

contracts are often awarded without consideration of a firm's safety preponderances. All these undermine the entrenchment of safety culture and the extent to which it is able to significantly influence cost reduction, differentiation and focus of the construction firm as part of the generic competitive strategies. The executives' approach to safety culture management also influences the pace of change and transformation that employees' behaviours and practices undertake for the betterment of safety culture.

- **Change and Transformation of Behaviours and Practices**

Most of the participants revealed that although in most of the cases, the construction firm may have put in place the relevant safety policies, procedures and standards, there is often still a tendency for the ordinary employees to revert to the old safety behaviours and practices. As some of the employees engage in such behaviours and practices, others attempt to even develop and apply their own safety management approach without the management's approval. This undermines the development and entrenchment of safety culture and the extent to which it is able to evolve to the desired maturity stage that often induces the competitive advantage for the construction firm. In a bid to ensure that behaviours and practices are changed and transformed to support safety behaviours, most of the participants stated that it is critical that employees and even supervisors to be monitored. Unfortunately, due to the shortage of staffs induced by the need to minimise costs, it is often not easy to effectively supervise and monitor other supervisors as activities are accomplished. This was found to be further exacerbated by poor motivation and reward of safety behaviours that cause a situation where the safety cultures of most of the construction firms never evolve to reach the maturity stage. Instead, findings indicated such safety cultures to only stagnate at the compliance stage and remain largely reactive and compliant.

DISCUSSION

Entrenched safety culture edifies the improvement of the competitiveness of a construction firm (Jha, 2011; MIRM, 2008; Ridly and Channing, 2012; Stranks, 2012). This is confirmed in the findings in Figure 2 that

support the theoretical articulation in Figure 1 that an effective construction safety culture turns into the strategic idiosyncratic resource that provides a firm with the ability to sustainably compete against rivals using Porter's (1986) three generic competitive strategies that include cost, differentiation and focus. However, it was quite evident that only firms that have reached the maturity stage of safety culture are usually able to achieve improved competitiveness on the basis of costs, differentiation and focus. In line with MIRM's (2008) model of five stages (vulnerable, reactive, compliant, proactive and resilient) of safety culture maturity, findings imply that it is only at the proactive and resilient stages that safety culture turns into an idiosyncratic resource that produces all the competitive advantages linked to cost, differentiation and focus. This contrasts with the reactive and compliance stage of safety culture maturity where a construction firm may only tend to gain cost reductions associated with compliance rather than differentiation and focus. When examined in the context of the state of safety culture development among the South African construction firms, it can be noted that most of the safety cultures exhibited by the construction firms are largely in the reactive and compliance stages. Findings revealed the state of such a largely reactive and compliance safety culture to be linked to the executives' emphasis of profits before safety, and poor change and transformation of the employees' behaviours and practices. As findings revealed, this renders them less able to gain sustainable competitive advantages from their safety cultures.

MANAGERIAL IMPLICATIONS

To ensure that a construction firm gains competitive advantage by developing its safety culture to the maturity and resilient level, it is argued in Figure 3 that the executives must on the first instance, developing and establishing health and safety building and construction policies, procedures, standards and safety management systems. With such a framework for initiating the development of a construction safety culture put in place, the next issue would require developing and improving the employees' safety competencies to apply such construction safety enhancement measures.

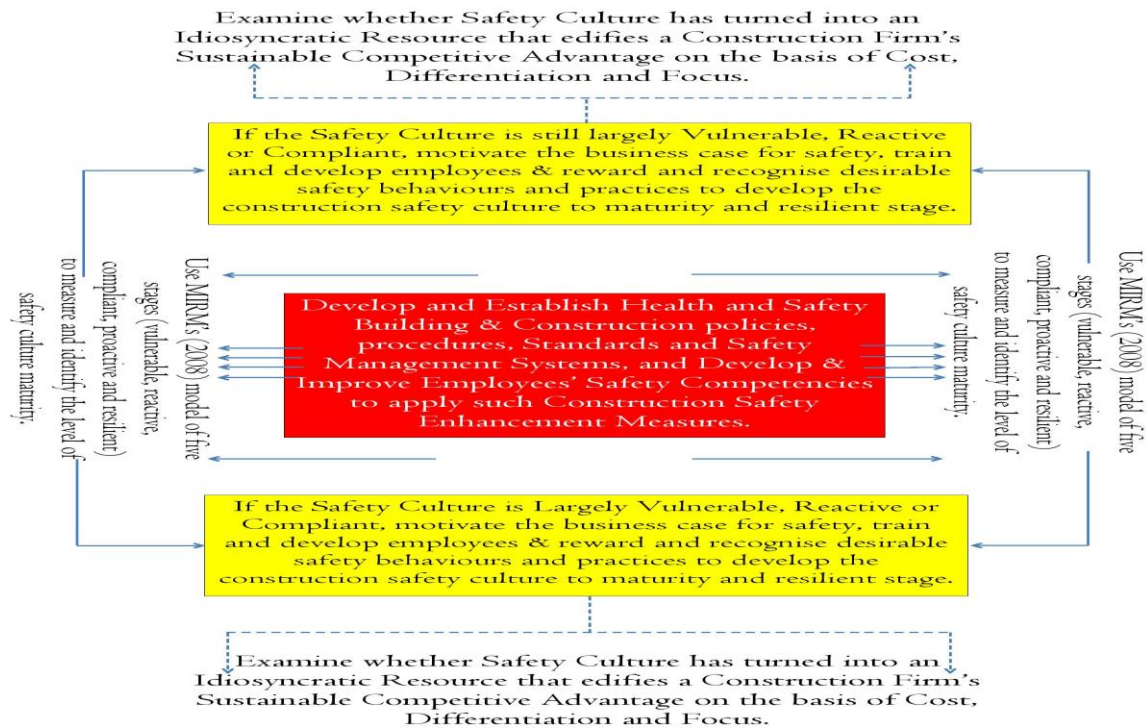


Figure 3: Developing Safety Culture as an Idiosyncratic Resource for a Construction Firm's Competitive Advantage
Source: As derived from the triangulation of the interview findings in Figure 2 with the theoretical articulations in Figure in Figure 1 (Barney, 1991; MIRM, 2008; Porter, 1986).

As the new safety culture behaviours and practices diffuse among the employees, MIRM's (2008) model of five stages (vulnerable, reactive, compliant, proactive and resilient) can be applied to measure and identify the level of safety culture maturity. If the safety culture is largely vulnerable, reactive or compliant, motivate the business case for safety, train and develop employees and reward and recognise desirable safety behaviours and practices to develop the construction safety culture to the maturity and resilient stage. Once evidence exists that the safety culture has reached the maturity and resilient stages, the executives must consider examining whether the safety culture has turned into an idiosyncratic resource that edifies a construction firm's sustainable competitive advantage on the basis of cost, differentiation and focus.

SUGGESTION FOR FURTHER RESEARCH

Although some of the construction firms were found to have developed a mature and resilient safety culture, most of the construction firms still face the challenges of the executives' emphasis of profits before safety, and poor change and transformation of employees' behaviours and practices. Such challenges limit the extent to which the safety cultures of most of the construction firms are able to turn into the idiosyncratic resources that edify a construction firm's

competitiveness on the basis of cost, differentiation and focus. In effect, the study suggested the model in Figure 3 for the construction firms to emulate in the process of developing a safety culture as an idiosyncratic resource. However, further studies can still explore the model that can be used to improve the dynamic capabilities of safety culture to constantly respond to the equally constantly changing safety and health needs of the construction consumers. Despite the use of the relevant theoretical and methodological triangulations to deal with the limitations of the study, the major limitation of this research was lack of prior enormous studies on safety culture as a strategic idiosyncratic value creating resource that edifies the competitiveness of a construction firm.

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