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Article title

Absorptive capacity within target firms:

The role of knowledge flow and productivity within emerging economies

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

7 November 2018

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University.

I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Sherilee Pillay
7 November 2018

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Section A: Motivation of journal choice

Gordon Institute of Business Science
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Date 7 November 2018

To whom it may concern

Thunderbird International Business Review, an indexed journal in EBSCO publishing, Thomson Reuters and Elsevier, is the chosen journal for publication as it consists of innovative and thought provoking articles on acquisitions and emerging market literature. This article entitled "Absorptive capacity within target firms: The role of knowledge flow and productivity within emerging economies" is a suitable fit in Thunderbird International Business Review as it addresses an influential gap in literature, focusing on characteristics of target firms during an acquisition within an emerging economy and thus extending emerging market literature. This article builds on research performed by Junni and Sarala (2013) to provide a practical perspective to ensuring the strategic intents of acquisitions are achieved.

This journal was chosen due to the impact factor of 1.94 and the focus on enriching literature on international business and targeting audiences of business practitioners. The article was written in accordance with all required journal criteria and correspondence with the editor regarding referencing style. In terms of the sequence of authorship, the researcher will be the first author and the second author will be the researcher's supervisor. The article has not been previously published and is not currently under consideration in any journal.

Should you have any concerns, please do not hesitate to contact either myself or my supervisor on the details provided below.

Yours sincerely,

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Section B: Literature review

Chapter 1 Literature Review

1.1. Introduction

Poor implementation, failed integration and negative revenue performance of acquisitions, have raised many concerns regarding the reasons for these undesirable outcomes (Ahammad, Tarba, Liu, & Glaister, 2016; Bernad, Fuentelsaz, & Gómez, 2010; Ferreira, Santos, de Almeida, & Reis, 2014). To address these concerns, absorptive capacity has been identified as a key contributor in acquisition implementation (Junni & Sarala, 2013; Li, Li, & Wang, 2016; Martín-de Castro, 2015). Absorptive capacity is a critical ability within firms to effect successful introduction, integration and assimilation of newly acquired knowledge resources. It facilitates the integration of internal knowledge with externally acquired knowledge, as this allows synergies to be identified and leveraged to gain optimised value (Cohen & Levinthal, 1990; Junni & Sarala, 2013; Nair, Demirbag, & Mellahi, 2016; Wang & Wang, 2015; Zahra & George, 2002). Osabutey, Williams and Debrah (2014) and Sears and Hoetker (2014) provide evidence of firms extracting value from the synergies between the acquiring and target firm through their absorptive capacity.

However there is a knowledge gap regarding the influences of absorptive capacity within target firms from emerging economies and as such, attempting to generalise what influences absorptive capacity based on findings from developed economies may be misleading (Khan, Rao-Nicholson, Akhtar, & He, 2016; Xie, Reddy, & Liang, 2017). Within emerging economies, there is a lack of experience and financial constraints that can handicap the target firms. The target firms must overcome these barriers to introduce; integrate old and new knowledge; and effectively assimilated acquired knowledge through the firm's absorptive capacity to utilise the acquired knowledge efficiently and make decisions that are in line with the strategic intents of the acquisition (Deng & Yang, 2015; Li et al., 2016; Zahra & George, 2002).

Acquired knowledge is a key resource for target firms during an acquisition. It is seen to be the most common driver for cross-border acquisitions as firms are acquired in accordance with the knowledge they posses in a specific context, knowledge which would otherwise take time to gain (Lichtenthaler, 2016). However, the value of acquired resources will only be evident if knowledge is successfully received into the target firm and by the extent to which the received knowledge is utilises in a firm's operations (Mukherji, Mukherji, Dibrell, & Francis, 2013). Absorptive capacity therefore may act as a funneling mechanism to productively utilise knowledge. Firms with absorptive capacity implement channels to allow knowledge to be reviewed for relevance. Therefrom it is allocated to the correct functions to be leveraged

effectively (Nair et al., 2016; Tzokas, Kim, Akbar, & Al-Dajani, 2015; Zahra & George, 2002). This requires acquired knowledge to smoothly flow into and amongst the target firm.

Knowledge flows is suggested to stimulate a firm's absorptive capacity. This enables the target firms to use available internal and external knowledge resources adaptively in creating value for the firm (Martín-de Castro, 2015). Integration of an acquisitions knowledge set has been identified as a precursor in the creation of value (Sears & Hoetker, 2014). It is discussed that these flows of knowledge into the target firm requires a "linkage" or effective process to be in place within the firms and their employees (Nair et al., 2016; Najafi-Tavani, Robson, Zaefarian, Andersson, & Yu, 2018). These processes allow knowledge to flow effectively, creating a larger pool of knowledge that will be the foundation for decision making and therefrom exploited to support the intents of the acquisition.

Supporting this knowledge flow requires target firms to have effectively run operations during the acquisition, as this is hypothesised to strengthen their absorptive capacity of acquired knowledge (Bernad et al., 2010; Nair et al., 2016). Cummins and Xie (2008) argue that acquirers prefer efficiently operated target firms, specifically as they possess competencies in focused areas such as technical skills, business processes and cultural competencies, as this supports the immediate use of knowledge to a commercial end. Investors acquire target firms with enhanced performance and productivity as these traits do not necessarily stem from the foreign acquiring firm (Bernad et al., 2010; Cummins & Xie, 2008). Instead, it is argued that within an emerging economy, productivity must be existing within the target firm in order for absorptive capacity to be effective. Productivity is seen as a means of creating value through efficient processes and operations such that resources are implemented in a timely manner (Oldford & Otchere, 2016; Stiebale & Vencappa, 2018).

Thus this study shows the influence of two critical factors: knowledge flow and productivity, on a target firm's absorptive capacity within an emerging economy. This contributes to the acquisition literature as it identifies critical influences of absorptive capacity that facilitate the utilisation of knowledge that will support acquisitions achieving their strategic intent depending on the nature of their intent. This literature review aims to understand in further detail the influence of knowledge flow and productivity on a target firm's absorptive capacity within emerging economies during an acquisition. In achieving these aims, the review incorporates an extended analysis of variables that have been identified as influential to a firm's absorptive capacity. The variables reviewed include an overview of the strategic objectives of an acquisition. Thereafter, developed and emerging economy dynamics, and acquired and target firm characteristics are analysed.

1.2. Acquisitions

1.2.1. Strategic objectives

The objective of an acquisition can be defined as the creation of sustainable value for shareholders and stakeholders through strategic opportunities gained with acquired resources and knowledge (Yao, Yang, Fisher, Ma, & Fang, 2013). Bertrand and Capron (2015) state that the underlying strategic objective of an acquisition is to source complimenting internal capabilities and resources that compensate for a firms own resource deficiency. Alternatively, acquisitions occur when an acquiring firm identifies synergies with a target firm. These synergies are seen as a potential channel to enhance the firm's capabilities to expand into new markets, extend product lines or enhance current operations (Ahammad et al., 2016; Bauer, Matzler, & Wolf, 2016; Rahman & Lambkin, 2015). Essentially the most important motive behind these deals is the creation of value through acquisition of a new resource or capability between two parties namely, the acquiring firm and the target firm, respectively (Xie et al., 2017).

The strategic intent behind acquiring a target firm can be classified as exploitative and/or explorative. Exploitative intentions refer to acquisitions that provide acquiring firms an opportunity to exploit their existing resources through an expansion into new markets or geographies. Popular cross-border acquisitions incorporate exploitation through the coordination of synergies within their operating systems for increasing revenue gains (Çömez-Dolgan & Tanyeri, 2015; Cummins & Xie, 2008). This generally occurs when a firm lacks specific assets or is under utilising its existing resources (Ahammad et al., 2016; Khan et al., 2016). Explorative intentions refers to acquisitions that focus on exploring and applying the acquiring firms' capabilities to target firms' existing lines of business or vice versa (Sears & Hoetker, 2014). Osabutey, Williams and Debrah (2014) show that technology transfers and knowledge transfer is a means to expanding a firm's capabilities during an acquisition as technologies can be utilised by target firms to enhance business performance. Exploitative and/or explorative intentions stem from the strategic or financial vision of a firm to enhance profits (Grigorieva & Petrunina, 2015; Rahman & Lambkin, 2015).

Research performed by Rahman and Lambkin (2015) shows evidence that the majority of acquisition deals involve the purchase of another company in the same industry as this allows economies of scale to be achieved. Economies of scope is another motivation often given for acquisition transactions as it can reduce the overall production costs by providing large volumes of specific products. However, the most commonly cited intent for acquisitions has been for knowledge acquisition, as this is seen as the fastest way to gain capabilities to enhance a firm's performance (Junni & Sarala, 2013; Mukherji, Mukherji, Dibrell, & Francis,

2013; Nair et al., 2016; Yao et al., 2013). Cummins and Xie (2008) summarise this as value creation through shared resources between the acquiring and target firm. As such, firms must understand the importance of the implementation of acquired resources to effect the intentions of an acquisition.

This review proceeded to evaluate the influences of an acquisition namely, developed and emerging economy dynamics as well as target and acquiring firm characteristics and absorptive capacity. A further understanding of these influences, will assist to facilitate the implementation of the acquisition accordingly.

1.3. Influential factors of acquisitions

1.3.1. Developed economies and emerging economies

Acquisitions within emerging economies, otherwise referred to as cross-border acquisitions, tend to have a weak knowledge transfer process across industries and between foreign and local firms due to the absence of experience (Helfat & Peteraf, 2014; Li et al., 2016), skills (Sarala, Junni, Cooper, & Tarba, 2016); effective processes and policies (Khan et al., 2016; Lebedev, Peng, Xie, & Stevens, 2015; Nair et al., 2016; Osabutey, Williams, & Debrah, 2014). This is a key challenge, as globalisation and privatisation has sparked a wave of acquisitions of firms from emerging economies (Xie et al., 2017). Emerging economies are becoming more relevant and increasingly important for global trade and foreign direct investment due to the opportunity for growth and the expansion of a firm's current business performance (Deng & Yang, 2015).

Key themes that emerge on the influences of acquisitions in developed economies were reported as: payment type (Grigorieva & Petrunina, 2015), organisational structure (Ahammad, Tarba, Liu, & Glaister, 2016); management characteristics (Di Stefano, Peteraf, & Verona, 2014; Zheng, Wei, Zhang, & Yang, 2016), firm size (Yao, Yang, Fisher, Ma, & Fang, 2013); prior acquisition experience (Li, Li, & Wang, 2016); and environmental factors (Deng & Yang, 2015; Lebedev, Peng, Xie, & Stevens, 2015). Grigorieva and Petrunina (2015) identified that acquisition research concentrated on acquisitions within developed countries, whereas the effect in emerging countries is required and less explored. This illustrated the need for further emerging economy research relating to acquisitions.

Literature relating to acquisition within emerging economies states that economic profit of companies deteriorated in combined firms after acquisition deals as the integration of synergies failed (Grigorieva & Petrunina, 2015). Similarly Leepsa and Mishra (2013) and Narayan and Thenmozhi (2014) state that acquisitions in emerging economies result in negative outcomes for the organisation due to poor implementation of the acquisition and

badly executed integration of the acquiring and target firm. In contrast, research performed by Kohli and Mann (2012) in India found that cross-border acquisition deals created significantly higher gains. As such, the extent of research of acquisitions within emerging economies are less conclusive than that of developed economies, therefore further research is required that focuses specifically on emerging economy firms (Du & Boateng, 2012; Ferreira et al., 2014). This will contribute to acquisition literature, as it provides a further understanding of the contributing factors that influence acquisitions within emerging economies.

To explain the outcome of acquisitions in emerging economies, Chen, Hua and Boateng (2017) state that the weakness of institutions and a lack of transparency results in unpredictable and less adaptive markets, which reduces the success of acquisitions. Under-developed institutions generate uncertainty regarding financial expropriation and operational risks thereby hampering acquisition implementation success (Du & Boateng, 2012). Contextual influences within emerging economies must be taken into account when performing an acquisition due to the high levels of political uncertainty and the absence of established institutions. Institutions for corporate control and corporate governance in emerging economies can be relatively weaker compared to developed economies (Helfat & Peteraf, 2014; Xie, Reddy, & Liang, 2017).This generates uncertainty for financial expropriation and operational risks, which is believed to hamper acquisition implementation success (Estrin & Prevezer, 2011). Acquisition transactions rely on institutional frameworks that ensures transparency, certainty, and contract enforcement to support the correct processes and policies to support the implementation of an acquisition. This is supported by research of Grigorieva and Petrunina (2015) which indicated that in an imperfect institutional environment, acquisitions fail to improve post-acquisition performance as imperfect institutional environments hinder organisations from extracting the complete benefits from deals.

Adding to these findings, target firms with a lack of acquisition experience rely on the institutional processes and policies to guide the successful implementation of an acquisition as they are inexperienced or unaware (Du & Sim, 2016; Li et al., 2016). Narayan and Thenmozhi (2014) illustrated in their research that emerging economy firms often make mistakes because of little experience in acquisitions, small size, and higher premiums because of limited bargaining power. As such, implementation of acquisitions within emerging markets face challenges that are not experienced in developed economies thus stressing the need for more focussed research on emerging economies to be completed in order for obstacles faced by emerging economy acquisitions to be understood and addressed.

Differences in culture, communication, language, and context can result in greater levels of complexity for target firms to implement an acquisition (Du & Sim, 2016). Acquiring firms do

not take into account the complexity of target firms within emerging economies in which country and historic dynamics, culture and skill sets of employees can be a challenge (Lebedev et al., 2015; Osabutey et al., 2014). These differences can be attributed to historical events, culture differences, pre-existing regulations and current regulations (Lebedev et al., 2015). Accordingly these specific features of emerging economies can influence the performance of acquisition deals in comparison to those from developed economies.

Absorptive capacity is a facilitating capability that supports the implementation of acquisitions. There is however a gap in literature regarding the influence of absorptive capacity on firms from emerging economies. Whilst there has been research performed on absorptive capacity holistically (Martín-de Castro, 2015; Sears & Hoetker, 2014; Tzokas, Kim, Akbar, & Al-Dajani, 2015), further research is required that narrows the focus to emerging economy firms. Absorptive capacity of firms will support the introduction, integration and assimilation of acquired knowledge. This will support the firm in overcoming the contextual challenges as channels will be established to support the integration of firms and overall implementation of the acquisition. As such, this research argues that a further understanding of the influences of absorptive capacity of firms from emerging economies is needed as emerging economies cannot be viewed the same as developed economies. To review emerging economies further, a distinction must be made between the acquiring firm and the target firm as these entities also cannot be viewed the same, nor can their influences (Mukherji, Mukherji, Dibrell, & Francis, 2013; Stahl et al., 2013).

1.3.2. The acquiring firm and target firm

Researchers underestimate the power of the target firm relative to the acquiring firm and the complex dynamic that has been reported to exist between these two entities (Stahl et al., 2013). Researchers fail to consider what changes emerge in the relationship between the acquiring and target firms after the acquisition transaction has closed and the reason that these changes occurred. Du and Sim (2016) mention that it is crucial to understand the effects of acquisitions on target and acquiring firms individually, as the effects on the acquiring firm differ compared to those of the target firm. This is due to the characteristics of the entities. Junni and Sarala (2013) showed empirical evidence that target firms' knowledge processing system influence target firms' absorptive capacity, whereas the knowledge processing systems had no effect on the absorptive capacity of the acquiring firm. Illustrating that different results were seen when the acquiring and target firms were regarded as the same, as opposed to separately (Li et al., 2016). The acquiring-target relationship must be considered between these two entities as these entities cannot be viewed the same, nor can their influencers (Mukherji et al., 2013; Stahl et al., 2013).

Target firms may be less efficient after the merger due to a more extensive restructuring. This results in target firms reacting negatively to acquisitions as target firm employees struggle to maintain their identity due to the organisational changes (Du & Sim, 2016). Firm characteristics and institutional development of a country where a target firm is located, have shown significantly positive influences on acquisition returns (Capron, Mitchell, & Swaminathan, 2001; Lebedev et al., 2015). Target firms within emerging economies may be less developed in terms of technology and infrastructure when compared to firms from developed economies, therefore it is critical to understand what are the capabilities imbedded in the target firms (Osabutey et al., 2014). This indicates the important role target firms play in effecting an acquisition as target firms with the capability to utilise the acquired resources will have a higher likelihood of achieving the strategic intents of the acquisition (Çömez-Dolgan & Tanyeri, 2015; Khan et al., 2016).

Accordingly, it is imperative for target firms to understand and acknowledge the extent to which they can absorb knowledge as this is increasingly becoming recognised as an advantageous capability for achieving the strategic intents of acquisitions (Cohen & Levinthal, 1990; Najafi-Tavani et al., 2018; Volberda, Foss, & Lyles, 2010). Cohen and Levinthal (1990) mention that the capacity to acquire knowledge depends on the intensity of effort of the employees and the firm's ability to effectively utilise their acquired knowledge. If not, poor performance may result which can result in a failed acquisition (Sears & Hoetker, 2014).

Research focused on absorptive capacity of target firms is critical for firms to effectively implement their strategic intentions. The target firms' resources and capabilities must be thoroughly understood to effectively acquire, assimilate, transform and exploit knowledge through the target firms' absorptive capacity during an acquisition. Performance relies heavily on efficient redeployment of complementary resources between the acquiring and target firm. Absorptive capacity supports the post-acquisition processes for the target firm as this will allow acquired resources and capabilities to be effectively redeployed and utilised by the firms. However Junni and Salara (2017) mention that work is needed for a more comprehensive understanding of the role of absorptive capacity in target firms within acquisitions.

Teece (2016) proposes the concept of dynamic capability theory to address "the crucial role of capabilities to integrate, learn and reconfigure internal and external resources within highly dynamic environments". The dynamic capabilities theory incorporates the use of a firm's capabilities strategically to enhance value (Di Stefano, Peteraf, & Verona, 2014). So whilst the strategic intent behind an acquisition should be an influential factor in an acquisition, the ability of the target firm to convert knowledge resources into a capability that can be utilised, must be incorporated. This required capability is suggested to be the target firm's absorptive capacity.

The following section reviews the concepts of absorptive capacity and its role during an acquisition.

1.3.3. Absorptive Capacity

Cohen and Levinthal (1990) state that absorptive capacity is a firm's ability to value, assimilate and apply old and new knowledge, internally and externally, to create and capture opportunities and innovations for a firm. Similarly Zahra and George (2002) define absorptive capacity as processes implemented by an organisation to acquire, assimilate, transform and exploit knowledge to enable or empower organisational capability. However, more recent research defined absorptive capacity as an organisational-level capability which resides within the employees of the organisation to make use of their internal and external knowledge (Cohen & Levinthal, 1990; Junni & Sarala, 2013; Wang & Wang, 2015). This capability is defined by three dimensions; introduction of external knowledge into the firm, integration of newly acquired knowledge with existing knowledge and the assimilation of this knowledge through effective utilisation of the obtained knowledge to commercial ends (Cohen & Levinthal, 1990; Martín-de Castro, 2015; Zahra & George, 2002).

Each dimension of absorptive capacity has a significant influence on the effective use of knowledge resources. Introduction of knowledge requires acquired knowledge to be identified by the target firm and diffused into the firm. Introduction and integration of knowledge into the target firm is crucial as the target firm reviews the relevance of the knowledge received in terms of the implications, potential synergies and benefit that can be extracted from the acquired knowledge (Nair et al., 2016; Yahiaoui, Chebbi, & Weber, 2016). This could affect the assimilation of knowledge as the implications of the acquired knowledge may impact current processes, costs for new processes or resources, as well as new skill requirements (Bernad et al., 2010; Buckley, Munjal, Enderwick, & Forsans, 2016; Cummins & Xie, 2008). Assimilation of knowledge requires the firm to have the capabilities to analyse, process, interpret, and understand acquired knowledge in aims of utilising the knowledge effectively as assimilated knowledge drives innovative ideas that enhances business performance (Martín-de Castro, 2015; Tzokas et al., 2015).

Absorptive capacity is highly relevant in acquisitions as utilisation of external knowledge through absorptive capacity, is crucial for newly acquired resources to be understood and implemented for the success of an acquisition's purpose (Ahammad et al., 2016; Bertrand & Capron, 2015). Essentially, absorptive capacity supports the post-acquisition processes as it allows acquired resources and capabilities to be effectively aligned and utilised by the firms.

Resource Based Theory (RBT) stresses knowledge as a unique assets that is crucial for implementing value creating strategies. Such assets enable enhanced capabilities and profitability during acquisitions (Ahammad et al., 2016; Barney, 1991; Bauer, Matzler, & Wolf, 2016; Rahman & Lambkin, 2015; Xie et al., 2017). However in order for these resources to be use, the firm must possess the capabilities to integrate, learn and reconfigure internal and external resources within environments such as emerging economies (Teece, 2016). Therefore, the following section describes Resource Based Theory and Dynamic Capability Theory as aiding theories in further understanding the effective use of resources with capabilities within acquisitions and the synergies with absorptive capacity.

1.4. Resource based theory and dynamic capability theory

Deng and Yang (2015) states that the Resource Based Theory (RBT) is a significant theory that can be used to explain why firms engage in acquisitions. Knowledge is believed to be a key resource for target firms during an acquisition. RBT is a theoretical framework for understanding the ability of organisations to understand and develop resources and capabilities sustainably (Nair, Demirbag, & Mellahi, 2016; Wernerfelt, 1984). This relates to the focus of this research as RBT emphasises the value of a firm's selected key resources and the implementation and utilisation of the firms key resources in creating superior performance and competitive advantage.

Barney (1991) stated than in order for a resource to provide a firm with an advantage it must be valuable, rare, non-imitable and non-substitutable (VRIN). The importance of resources are stressed as unique assets that are crucial for implementing value-creating strategies. In the contexts of acquisitions, target firms must identify their acquired VRIN resources as this will allow firms to understand what capabilities and skills are required for effective integration of the newly acquired resources. To classify resources further, three categories have been established, namely physical, human or organisational (Di Stefano, Peteraf, & Verona, 2014). Physical resources refers to equipment or location; human resources refers to skills and experience contained by employees; and organisational resources refers to the functions and processes existing within a firm.

However, in order for the target firms resources to be used effectively, organisations must overcome the challenge of converting the resources into capabilities that can be implemented (Mukherji, Mukherji, Dibrell, & Francis, 2013). Absorptive capacity of firms entail knowledge and resources being understood and implemented to serve a valuable purpose, therefore literature suggests that absorptive capacity is a useful capability in facilitating the use of acquired knowledge into the target firm in an effective manner (Junni & Sarala, 2013; Li et al., 2016; Martín-de Castro, 2015).

Accordingly, organisations should explore the relationship between acquired resources and dynamic capabilities of the target firm in order to demonstrate an integrated and effective allocation of resources for effective use (Barney, 1991; Lin & Wu, 2014; Wernerfelt, 1984). Teece (2016) proposes the concept of dynamic capability theory to address "the crucial role of capabilities to integrate, learn and reconfigure internal and external resources within highly dynamic environments". Dynamic capabilities theory incorporates the use of a firm's capabilities strategically to enhance value for firms within dynamic markets such as that within an emerging economy (Di Stefano et al., 2014). So whilst the strategic intent behind an acquisition should be an influential factor in an acquisition, the capabilities to convert resources into capabilities must be acknowledged.

Therefore, in the context of acquisitions, acquiring firms must ensure target firms are explored and effectively understood so that the relationship between the resources and dynamic capabilities are aligned (Malhotra, Lin, & Farrell, 2016). Literature eludes to absorptive capacity being the key capability to facilitate this relationship as absorptive capacity acts as a funneling mechanism to productively utilise knowledge, as firms with absorptive capacity have channels implemented in the firm to allow knowledge to be reviewed for relevance and then allocated to the correct functions to be leveraged effectively (Lane & Lubatkin, 1998; Zahra & George, 2002).

Therefore understanding the contributing factors to absorptive capacity of target firms within emerging economies is important in achieving the acquisitions strategic intent as acquired knowledge is optimally used. Accordingly the proceeding section reviews the influences of absorptive capacity.

1.5. Influential factors of absorptive capacity

Najafi-Tavani et al. (2018) states that acquiring firms should allocate time and resources to ensure knowledge is transferred to target firms during an acquisition, however it is imperative that a target firm has the capability to absorb such knowledge. It is proposed that absorptive capacity will determine the extent to which knowledge diffuses into a firm and the extent to which is it leveraged by the firm. Research on absorptive capacity has made significant contributions to acquisition literature, such as the work performed by Osabutey et al. (2014) and Sears and Hoetker (2014) whom provide examples of knowledge transfer processes that supports synergies between the acquiring and target firm, and through absorptive capacity creates value during the acquisition.

Researched performed by Li, Li, & Wang (2016) showed evidence that contextual influences can negatively affect absorptive capacity whereas knowledge transfer and communication increase the creation of absorptive capacity. Similar research regarding cultural influences

were performed by Ahammad et al. (2016), Khan et al. (2016), Malhotra et al. (2016), Nair et al. (2016), Nicholson and Salaber (2013) and Xie, Reddy and Liang (2017), illustrating that culture is seen to be significant influencer of absorptive capacity. Cultural fits (Li et al., 2016), existing regulations, geographic (Nicholson & Salaber, 2013) or historic country dynamics (Junni & Sarala, 2013), employee behaviour (Bertrand & Capron, 2015; Oldford & Otchere, 2016; Zahra & George, 2002), communication, staff retention (Bauer et al., 2016; Wang & Wang, 2015), productivity (Ahammad et al., 2016), organisational and integration processes (Yao et al., 2013), and knowledge transfer (Sears & Hoetker, 2014) have shown a significant influence on a firm's absorptive capacity. Junni and Sarala (2013) highlight the importance of continued research in the field of absorptive capacity, as influences and outcomes are underexplored specifically within target firms. Similarly Volberda et al. (2010) mentions that contextual influences of absorptive capacity are underestimated.

An alternative perspective is shown by Volberda et al. (2010), reporting that influences of absorptive capacity can be classified into three dimensions, namely: contextual (cultural fits or geographical regulations); individual (employee retention and skills development); or due to organisational design (learning processes, productivity of operations and processes related to knowledge flows). In accordance with the classification stated by Volberda et al. (2010), contextual and individual influences have been at the forefront of absorptive capacity literature (Rezaei Zadeh & Darwish, 2016).

However less research has been performed on the impact of organisational design of the firms on the absorptive capacity. Cohen and Levinthal (1990) mention that absorptive capacity depends on the intensity of effort of the employees and the firm's ability to effectively utilise their acquired knowledge. In order for the organisation to effectively utilise the acquired knowledge, the correct organisational processes should exist or be implemented accordingly. Therefore this research aims to enrich literature on organisational design influences of absorptive capacity in target firms. Focussing on the influence of knowledge flows and productivity of operations on absorptive capacity at an organisational level of a target firm (Bauer et al., 2016; Chen et al., 2017; Ferreira et al., 2014; Volberda et al., 2010).

The following section reviews the current literature regarding knowledge flows and productivity within target firms in emerging economies and the role of these factors on absorptive capacity.

1.5.1 Knowledge flow

Effective knowledge flows is largely related to transplanting knowledge into a target firm through an uninterrupted movement of knowledge (Hurtado-Ayala & Gonzalez-Campo, 2015; Najafi-Tavani et al., 2018). Absorptive capacity incorporates the required processes to

introduce, integrate and assimilate knowledge into the firm. Khan et al. (2016), Najafi-Tavani et al. (2018), and Nicholson and Salaber (2013) attribute this to absorptive capacity behaving as the moderator between the flow of knowledge and target firms. To achieve such knowledge flow, Junni and Sarala (2013) show that knowledge processing systems facilitate knowledge movement and require intercompany communication and teamwork in conjunction with supportive infrastructure. This can be related to the organisational design of the firm, an antecedent less explored in absorptive capacity literature.

Firms must have communication within the target firms itself as this will establish the required channel for knowledge flows (Liu, Gao, Lu, & Lioliou, 2016). Communication of acquired knowledge transferred within the firm enables integration processes to be implemented for the then assimilation of the knowledge. An example of such is research performed by Li, Li, & Wang (2016), who showed evidence that knowledge flow and communication increased the creation of absorptive capacity which supports the effective integration of the acquiring and target firm. Najafi-Tavani et al. (2018) stress that acquiring firms should allocate time and resources to ensure knowledge flows within the target firm, stressing that it is imperative that a target firm has the capability to absorb such knowledge into the firms. The ability of the target firm to use newly acquired knowledge will enable enhanced internal processes, products, and services, as this transferred knowledge will be effectively implemented to enhance operations.

Effective communication between acquiring and target firms facilitate the integration and assimilation of acquired knowledge through the firms absorptive capacity and allows an exchange of thoughts and experiences between the firms and employees (Rezaei Zadeh & Darwish, 2016). As such, merging firms together should create social interactions within and between the acquiring and target firms in order to establish channels for knowledge to flow (Liu et al., 2016). This communication via social interactions create cross functional ties and connectedness that strengthen the trust and familiarity between the firms and employees. Familiarity is central to reduce tensions that can exist between the acquiring and target firms, which hinders the integration of firms as well as resources (Khan et al., 2016; Nair et al., 2016).

Communication enables employees to access previous experiences and build a social system for them to share know-how, facilitating the socialisation and externalisation of knowledge. Research completed by Rezaei Zadeh and Darwish (2016) emphasise the importance of target firms to communicate and interact continually to achieve shared practices and knowledge movement, as this will enhance the firm's absorptive capacity to introduce, integrate and assimilate the knowledge acquired. The ability of the target firm to use newly acquired knowledge through the firm's absorptive capacity is suggested to enable enhanced internal processes, products, and services as the acquired knowledge will be effectively implemented to enhance operations.

Knowledge flow within the target firm requires the employees to have the appropriate skills to leverage the acquired knowledge when making decisions (Chen et al., 2017; Stiebale & Vencappa, 2018). Skills involved in joint tasks or projects as well as collective teaching (employees observe the employees of the other firm) and direct observation (knowledge embedded in daily routines and interactions with employees) are ways of stimulating knowledge flow (Najafi-Tavani et al., 2018; Sarala et al., 2016). Accordingly, target firms containing the ideal skills will facilitate the flow of knowledge to the target firm as well as within the target firm. This will enhance the firm's absorptive capacity as acquired knowledge will be available and understood for further implementation. Effective knowledge flow influences the absorptive capacity as it diffuses knowledge across the target firm and stimulates the deployment of knowledge into suitable use. The target firm thus has the ability to make decisions based on the consolidated old and acquired knowledge.

The following section focuses on the productivity of target firms as effective knowledge flow to target firms can generate value for firms provided operational and organisational efficiencies are available to receive them accordingly (Stiebale & Vencappa, 2018).

1.5.2 Productivity

Absorptive capacity is assumed to be a capability which can be accomplished through organisational routines and processes (Martín-de Castro, 2015; Rezaei Zadeh & Darwish, 2016; Tzokas et al., 2015). This research identifies the organisational routines and processes of a target firm as the firm's productivity. Productivity is a measure used to understand how a firm's resources create value through operational and organisational efficiencies (Bertrand & Capron, 2015). Effective knowledge transfer to target firms can materialise to generate great value for firms provided operational efficiencies are existing or implemented accordingly (Stiebale & Vencappa, 2018).

With productive operations and systems, absorptive capacity was found to be a determinant of the ability to achieve superior business performance and obtain strategic assets (Deng & Yang, 2015). These productive operations paved a pathway for new knowledge to be introduced and integrated into the firms. This article argues that productivity is a contributing factor to enhance absorptive capacity to support acquisitions (Schiffbauer, Siedschlag, & Ruane, 2017). Supporting this perspective is research performed by Lichtenthaler (2016), who stated that absorptive capacity can also have negative outcomes on a firm if the firm does not have the competences to transform the knowledge due to failing internal exploitation processes. It is argued that operating processes and implementation processes have a positive influence on absorptive capacity as they form a fundamental framework within the firm that support the introduction, integration and assimilation of knowledge into the firm. Such

findings will contribute to acquisition literature as it will develop an understanding regarding the influence of productivity on the absorptive capacity of acquired knowledge for target firm in emerging economies during an acquisition.

Associated infrastructure and the way in which the organisational processes are configured affects the efficiency and effectiveness of knowledge utilisation (Lichtenthaler, 2016). Organisational structures, policies, routines and prior related knowledge are influential factors to a target firm's absorptive capacity and have been reported to positively influence the development of knowledge within the firms (Rezaei Zadeh & Darwish, 2016; Volberda et al., 2010). Target firms with effective interactions with stakeholders contribute to the firms productivity. This can include local suppliers, buyers, competitors, trade associations and the local labour market (Oldford & Otchere, 2016). Target firms must capture value by ensuring their capabilities to implement new processes should the firm require the restructure of stakeholders, assets and/or to redeploy resources (Mukherji et al., 2013; Yahiaoui et al., 2016). Target firms must have the capabilities to reorganise resources to ensure efficiency gains, this is performed by means of reallocation of production across firms, leveraging economies of scale and economies of scope (Chen et al., 2017; Junni & Sarala, 2013). This enhances the target firm's productivity through effectively designed operations of the firm (Osabutey, Williams, & Debrah, 2014).

Productivity has mainly been reviewed in terms of post-acquisition performance, stating that acquiring firms must ensure best practises are transferred to the target firm (Yahiaoui, Chebbi, & Weber, 2016). It is in fact, also the existing operational processes at the target firm that will facilitate the utilisation of acquired knowledge into the target firm. Empirical results obtain from Grigorieva and Petrunina (2015) show that post-acquisition performance is directly related to pre-acquisition performance of the target firm therefore, a firm lacking operational and organisational efficiencies before the acquisition may not improve afterwards. Stiebale and Vencappa (2018) extend the analysis to show research on the effects of domestic and international acquisitions on target firm, in which acquisitions are seen to enhance productivity through the transfer of complementary resources or re-allocation of resources efficiently.

In contrast, Bernad, Fuentelsaz, and Gómez (2010) show that after acquisition productivity improvements can be found in only half of the acquisitions. Such inconclusive research has illustrated that productivity is not necessarily only an outcome of an acquisition (Bernad et al., 2010; Cummins & Xie, 2008). This article argues that productivity should not only be considered as a resulting factor from successful acquisitions but a contributing factor to enhance absorptive capacity to support acquisitions (Schiffbauer et al., 2017). This is a topic that has not been investigated in this context of target firms in current literature despite having

a strong business relevance as it identifies the impact of a target firm's productivity on absorptive capacity of acquired knowledge during an acquisition.

Therefore in accordance with Cohen and Levinthal (1990) and Vaara, Sarala, Stahl, and Bjorkman (2012), whom state that target firm's ability to introduce, integrate and assimilate new ideas depends on the strength of their absorptive capacity, understanding the relationship between a target firms productivity and absorptive capacity can support implementation of acquired knowledge to achieve the strategic intents of an acquisition.

1.6. Summary

Superior acquisition performance is significantly influenced by absorptive capacity. This study contributes to acquisition literature as it identifies and investigates a knowledge gap regarding the influences of absorptive capacity in target firms from emerging economies. This article assesses the role of knowledge flow and productivity on the absorptive capacity of target firms in emerging economies as movement of acquired knowledge successfully to the target firm, through an efficient flow of knowledge, and productive operational and organisation processes are important and less explored influences of absorptive capacity.

Section C: Research Methodology

Chapter 2 Research Methodology

2.1. Introduction

This research is focused on the influence of knowledge flow and productivity on absorptive capacity of a target firm in an emerging economy. This has significant relevance as efficient flows of acquired knowledge to the target firm and productive operational and organisation processes are important and less explored influences of absorptive capacity.

Therefore to further investigate the role of knowledge flow and productivity on the absorptive capacity of a target firm within an emerging economy, the following methodology was implemented to address this research question.

2.2. Research Design

In determining the role of knowledge flow and productivity on absorptive capacity, two research design options were available, namely an inductive or a deductive approach. A deductive approach involves testing theoretical hypotheses whilst an inductive approach formulates a theoretical hypothesis (Saunders, Lewis, & Thornhill, 2016). The decision for conducting a deductive approach was founded on the uncertainty regarding knowledge flow and productivity as contributing factors of absorptive capacity within target firms (Lebedev et al., 2015). Clarifying this uncertainty was key, as absorptive capacity aids target firms in implementing successful acquisitions as knowledge is absorbed into the firm's processes and articulated into a commercial purpose that enhances business performance (Ahammad et al., 2016; Grigorieva & Petrunina, 2015).

This research followed a positivism perspective due to the researcher's bias towards the view that data provides evidence in persuasion of a viewpoint. A positivism perspective is defined as a research philosophy that is highly structured to use measurable variables to describe the relationship and influence between the dependent variable (absorptive capacity) and independent variables (knowledge flow and productivity). The researcher's preference resulted in biases regarding key questions, data interpretation methods, and data representation (Stoudt, 2014). Therefore to address this bias, a critical approach was used by utilising various literature sources to analyse method designs and to obtain a design that was most suited to address the stated hypotheses. An analysis of literature confirmed that this field of study followed a positivism perspective (Anderson & Eshima, 2013; Junni & Sarala, 2013; Nicholson & Salaber, 2013; Surroca et al., 2010). This study analysed data to measurably deduce a relationship between knowledge flows, productivity and absorptive capacity.

In accordance with subsequent research performed, a mono-method research design was primarily used. A mono-method research design can be defined as a methodology that consists of either analysing, or interpreting quantitative or qualitative data in a single study (Morgan, 2017). Quantitative research was the method of choice as it allowed the effective relationship between knowledge flow and productivity on absorptive capacity to be analysed. In contrast, qualitative research was not used as a deeper understanding behind the mechanics of knowledge flow, productivity and absorptive capacity has been completed in separate studies (Bertrand & Capron, 2015; Osabutey, Williams, & Debrah, 2014). However, the qualitative information was used as the foundation to which the relationship between knowledge flow and productivity on absorptive capacity was analysed for target firms in emerging economies (Stoudt, 2014).

An example was research performed by Junni and Sarala (2013), Oldford and Otchere (2016); Surroca et al. (2010), who utilised quantitative designs to understand the relationships between national cultural differences, employee withdrawal and integration communication processes with absorptive capacity in varying contexts. Malhotra et al. (2016) is an example of quantitative design that produced empirical evidence that cultural, geographic and institutional distances increases as a firm's inclination to use shared resources within cross-border acquisitions increases. Thus the use of quantitative designs can determine the effective relationships between critical constructs within acquisition research (Saunders et al., 2016). Furthermore, via a quantitative design, information obtained about the specific sample population can be generalised when analysing larger populations (Morgan, 2017).

2.2.1. Data collection

Bertrand and Capron (2015) utilised the Thomson One Banker – Deals Database to build their sample, as this list covers all acquisition transactions in their targeted population. Similarly Oldford and Otchere (2016) used the Securities Data Corporation, which is a comprehensive database of all Canadian acquisitions. Therefore, this analysis was performed on data obtained from respondents within acquisitions publicly published within the Competition Commission South Africa's database. This is an official emerging economies database, therefore the containing acquisitions are a true representation of target firms within emerging economies. This indicated that the database was fit for the cause, suitable and obtainable.

Suitability of the database supported proceedings of data collection. Data was collected from employees within firms published on the Competition Commission database by mean of a questionnaire. The use of questionnaires have been a common method seen in literature to gather data. This is a primary method of data collection as it measures the frequency and impact on a sample population through scaled questions which aim to assess trends and

relationships amongst constructs (Burrell & Gross, 2017; Junni & Sarala, 2013). Questionnaires were a suitable choice of data collection as they allowed large quantities of data to be collected in a timely manner. It was a simpler and cheaper method for collection and the questionnaires were distributed electronically therefore reducing the risks involved with face-to-face unavailability of respondents. Conversely, questionnaires can result in respondents not completing the questionnaire as well as unexpected technical issues with the surveying platform (Morgan, 2017). To mitigate these risks, questionnaires were electronically distributed to approximately 200 – 300 employees via Survey Monkey to ensure a feasible number of responses were received. To achieve the targeted number of respondents, questionnaires were shared electronically via emailed links and links posted on social media platforms WhatsApp, Twitter, Facebook and LinkedIn.

To ensure responses were received in a timely manner, a cut-off date of eight weeks was implemented therefore a cross sectional time horizon was implemented. Cross-sectional time horizons consist of collecting data from various respondents over a set period of time. This time horizon was suited for this quantitative research, as this allows an analysis to be performed regarding the current effect that productivity and knowledge flow have on absorptive capacity. This research remained cognisant that cross-sectional study designs illustrate the current status, therefore information regarding what has happened before is not taken into consideration. A longitudinal study was unsuitable as the change of knowledge flows or productivity was not the focus of this study, but rather the current state of influence on the absorptive capacity (Saunders et al., 2016).

2.2.2. Population

The population for this study comprised of all firms within acquisitions in emerging economies. However research performed by Lebedev et al. (2015), Nicholson and Salaber (2013) and Xie, Reddy and Liang (2017) illustrated that acquisition studies should apply a criteria to ensure that impractical and irrelevant quantities of data as well as outdated data were omitted (Li et al., 2016; Nair, Demirbag, & Mellahi, 2016; Nicholson & Salaber, 2013; Sears & Hoetker, 2014). Similarly Morgan (2017) mentioned that an eligible criteria must be defined to determine the data source. An evident practice seen in literature was the limitation of the time period used to collect data as well as establishing prerequisites for an acquisitions to be considered in the study.

In accordance with literature the following criteria was implemented for the targeted sample set;

- The acquisition must be completed;
- The acquisition has officially been announced;
- The acquired firm must be located in an emerging economy, and
- The acquisition must have occurred with the last 3 year (2015 - 2017).

A 3 year interval was analysed as this allowed recent acquisitions that are in their post-acquisition period to be analysed. Accordingly only respondents who fulfilled this criteria were requested to complete the questionnaire.

Unit of analysis

The greatest effect acquisitions have are on the organisations themselves therefore this study was performed on the organisational unit level (Ferreira, Santos, de Almeida, & Reis, 2014). Furthermore, as this study focuses on target firms with emerging economies, our research focused on the organisational level of target firms within emerging economies.

2.2.3. Sampling method and size

The sampling method for the respondents was performed using purposive sampling. Purposive sampling is defined as a non-probability sampling procedure in which elements are selected from the target population on the basis of a specific criteria (Daniel, 2012). To ensure 200 to 300 respondents were obtained, this method was supported with snowball sampling. Snowball sampling refers to a sampling technique where existing respondents recruit other respondents from amongst their organisations or networks. The researcher made use of connections within their network of firms to support the snowball sampling. These sampling methods were complementary and appropriate for the focussed research as it targeted a specific set of respondents that were in-line with required criteria (Daniel, 2012). Respondents consisted of personnel such as heads of organisations and junior, middle and senior managers, as these employees have a holistic view on the organisation and the actual integration effects contained within the acquisition (Nair et al., 2016).

2.3. Measurement instrument

The questionnaire consisted of three parts namely, knowledge flow, productivity, and absorptive capacity, respectively. We emphasised confidentiality in the cover letter and used published questionnaires to measure absorptive capacity (Mahnke, Pedersen, & Venzin,

2005), knowledge flow (Yang & Rui, 2009) and productivity (Hurtado-Ayala & Gonzalez-Campo, 2015). This was distributed using an electronic platform known as "Survey Monkey".

Questionnaires measured respondents based on a Likert scale. The scale ranged from 1 indicating "strongly disagree" to 5 indicating "strongly agree" (Flatten, Engelen, Zahra, & Brettel, 2011). The Likert scale was a suitable measurement instrument as it allowed respondent to advise the extent to which they agree or disagree. Furthermore this instrument is universal and therefore could be applied to all questions. This allowed respondents ease when providing feedback. However Likert scales can have disadvantages, as responses can be exaggerated or limited depending on the respondents' perceived understanding of the Likert scale intervals.

2.3.1. Measuring Absorptive Capacity

Absorptive capacity was measured using questions related to; introduction of new knowledge into the target firm, integration of new and old knowledge and the assimilation of the knowledge (Flatten, Engelen, Zahra, & Brettel, 2011; Yao et al., 2013; Zahra & George, 2002). Drawing on absorptive capacity literature, absorptive capacity is reported as a multi-layered construct instead of a one-dimensional construct therefore the above mentioned dimensions were incorporated into the questionnaire (Hurtado-Ayala & Gonzalez-Campo, 2015).

2.3.2. Measuring Knowledge flow

Knowledge flow was determined by evaluating the effectiveness of knowledge flow within the target firm and incorporated questions that focussed on the communication (Junni & Sarala, 2013), processes (Teece, 2016) and skills (Sarala et al., 2016) that facilitated knowledge flow. A broad range of functions supported the analysis of effective knowledge flow throughout the organisation as this assisted to limit biases between functions and ensure the organisation was holistically represented (Bernad, Fuentelsaz, & Gómez, 2010)

2.3.3. Measuring productivity

Productivity is defined as the means by which a firm's resources create value through operational and organisational efficiencies. To measure this construct respondents were asked questions pertaining to barriers in the organisational structure, operational effectiveness, effectiveness of the information communicated during the integration process and flexibility to implement changes to increase value (Oldford & Otchere, 2016). This allowed an overall understanding regarding implementation of processes as well as the day-to-day operational efficiencies.

2.3.4. Descriptive variables

Size, experience and industry specifics are examples of factors influencing acquisitions, therefore these variables were included into the questionnaire to deepen the understanding of the respondents (Liu, Gao, Lu, & Lioliou, 2016). These questions consisted of: number of subordinates; size of the firm; age of the firm; experience of the firm in dealing with acquisitions; and relatedness/involvement in the acquisition.

2.4. Data collection tool

To ensure the questionnaire was pre-tested for performed regarding grammar and correct interpretation of the surveyed questions, a pre-test questionnaire was sent to 20 people to complete. Feedback was requested from all respondents and relevant changes were implemented accordingly. Once changes were made, the survey was distributed accordingly. Confidentiality was stated in the cover letter and respondents were freely allowed to exit the questionnaire.

Questionnaires were shared electronically via emailed links and links posted on social media platforms Twitter, WhatsApp, Facebook and LinkedIn. Online questionnaires allowed faster responses from respondents as well as ease of providing feedback as questionnaires were accessible to participants via a hyperlink on their electronic devices such as mobiles, laptops and desktops. This method was chosen as it allowed the data to be collated digitally, without the need for recapturing data. Furthermore, a unique number for identification was assigned to each participant as a control for duplicate entries. This form of data collection was more cost effective as the link was sent to respondents in masses (Stoudt, 2014). However to ensure responses were received in a timely manner, a cut-off date of eight weeks was implemented. After eight weeks of data collection, 120 responses were collected.

The data collected was analysed using Statistical Packaging for Social Science (SPSS). This research used statistical and graphical methods to represent the collected data.

2.5. Data analysis

The research builds on researched performed by Junni and Salara (2013) whose data set consisted of 123 respondents and measured the relationship between absorptive capacity and knowledge transfer between the acquiring and target firms. Therefore the 120 completed questionnaires was considered sufficient to continue with data analysis.   However further analysis of the data showed 10 respondents completing less than 50% of the questions required. These 10 respondents were removed from the data set as their response was classified as incomplete. Incomplete questionnaires with more than 50% completion rate were completed using calculated response averages to complete the blank entries.

The 110 data points were analysed via descriptive statistics, validity and reliability tests and inferential statistics for hypothesis testing.

2.5.1. Descriptive statistics

Descriptive statistics is defined as statistics that summarise a sample set or larger population and describes the central tendency, relative contribution and spread of the data collected (Stoudt, 2014). The descriptive data was included in the study to ensure a deeper understanding of the respondents was obtained. Descriptive data of the respondents included the demographic profile, age, number of subordinates, size of the firm, age of the firm, experience of the firm in dealing with acquisitions and relatedness/involvement in the acquisition. Majority of respondents were from junior management (30.84%) and middle management (37.38%). Respondents consisted of managers from sales (24%), marketing (12%), research and development (8%), manufacturing (16%), human resources (4%) and general business management (32%). Of the acquisition cases, 80% of respondents had less than 5 years of experience in acquisitions. This supports literatures that shows that emerging economies consist of firms that have less experience in implementing acquisitions.

The assessments of associated data points from the questions relating to the constructs were analysed through calculation of the means and standard deviations. This indicated the spread of responses obtained, their relatedness to the mean response and the overall trends emerging from the specific sample set.

2.5.2. Validity and reliability

Validity and reliability assessments are critical tests in performing survey questionnaires. Validity calculations are utilised to ensure the scale measured its intended purpose and reliability determines the degree to which the instruments' measurement are reproducible, to give the same measured outcome when measurements are repeated (Swank & Mullen, 2017; Taber, 2017). Accordingly, a Cronbach alpha calculation was performed to ensure validity and reliability of the questions before proceeding with hypothesis testing.

2.5.2.1. Cronbach's Alpha

The Cronbach alpha provided the researcher with a measure of questionnaire validity and reliability as it indicated the internal consistency of the questionnaire (Taber, 2017). Internal consistency depicted the degree to which items measure the same construct and the questionnaire had captured the essence of the construct being measured. Cronbach's alpha is the most commonly used coefficient for assessing internal consistency and is described as following the formula;

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum s_i^2}{s_T^2}\right)$$

Where k represents the number of items, s_i^2 the variance of the ith item and the s_T^2 the variance of the sum of all items. Cronbach alpha values tending towards 1 are deemed strong, therefore indicating good consistency. Alternatively values tending towards 0 are deemed not satisfactory for consistency and reliability of the questionnaire (Taber, 2017).

2.5.3. Hypothesis testing

2.5.3.1. Factor analysis

Exploratory factor analysis (EFA) is a statistical technique which uncovers theoretical factors underlying a set of variables. The relationship within the set off underlying factors is examined, which therefrom prompts further analysis (Izquierdo et al., 2014). Once the data confirmed validity and reliability, the study performed EFA tests consisting of Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin Test of Sampling Adequacy. These tests were performed as EFA is not an individual statistical method, but rather different statistical tests that facilitate the analysis of the underlying factors within a construct. The constructs assessed in this study, knowledge flow, productivity and absorptive capacity, consisted of 10 questions per construct with 110 respondents for each question.

Bartlett's Test of Sphericity provides evidence that the observed construct consists of a linear combination of factors and can therefore be factorised into relevant factors. The Kaiser-Meyer-Olkin Test of Sampling Adequacy (KMO) measured the shared variance in each construct. The main aim of EFA was to determine the minimum number of common factors contributing to the overall construct and the associated factor extractions (Beavers et al., 2013).

Thereafter, a confirmatory factor analysis was performed (CFA) to verify the convergent and discriminant validity of the structural model. The key indicators used in this study regarding acceptable model fit for a CFA was the Root mean square (RMSEA>0.08), comparative fit index (CFI≤ 0.09) and the incremental fit index (IFI> 0.95) (Beavers et al., 2013). These key indicators were decided in accordance with suggested analyses techniques shown by Izquierdo et al (2014). However, a critical part of a CFA uncovered relates to the importance of adequate sample size on the outcome of an effective CFA analysis (Hair, Black, Babin, & Anderson, 2010; Izquierdo et al., 2014; Beavers et al., 2013). The unacceptable CFA analysis attained was attributed to the relatively smaller sample size of this study therefore primary focus was placed on the EFA results.

2.5.3.2. Correlation and regression analysis

The relationship between absorptive capacity, knowledge flow and productivity was analysed using a Pearson correlation (r). A pearson correlation coefficient was computed to assess the relationship between absorptive capacity, knowledge flow and productivity accordingly. This resulting data was an indication of the strength and direction of the association between the variables.

A linear correlation analysis was performed to determine the convergent or bivariate relationship between the variables extracted through the EFA. Interpreting the correlations involved consideration of the (i) statistical significance of a correlation analysis and (ii) direction (+ or −) of the relationship. A correlation value r > 0.50 indicated a very high correlation, 0.40 > r > 0.49 indicated a high correlation, 0.21 > r > 0.40 was a moderate or acceptable correlation, and less than < 0.20 was low (Flatten et al., 2011; Swank & Mullen, 2017).

The dependent variable under analysis was absorptive capacity and the independent variables, productivity and knowledge flow respectively. The null hypothesis (H_0) in the correlations analysis claimed there is no linear relationship between absorptive capacity and knowledge flow as well as absorptive capacity and productivity. The H_1 and H_2 hypotheses claimed there is a statistically significant linear relationship (Swank & Mullen, 2017).

A linear regression analysis was also performed to determine the extent of the relationship between the variables. The coefficient of determination (R^2) values were extracted from an SPSS simulation and analysed accordingly. Positive R^2 values indicated that the dependent variable would proportionally change by the R^2 value. A regression analysis was deemed suitable as the hypothesised questions focussed on determining the existence and extent influence.

After the evaluation of the R^2, the beta coefficients (β) and associated significance and t-value was reviewed. The beta coefficient is defined as the degree of change in the outcome variable and determines if the variable predicts the outcome. Accordingly β was deemed a suitable test as this supported the aim of the research hypotheses. The t-test identified if the coefficient was different from zero (Junni & Sarala, 2013; Malhotra, Lin, & Farrell, 2016).

Section D: Reference list

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Section E: Questionnaire

A	Demographics	Likert Scale				
A1	Age	1 = >20	2 = 20 - 30	3 = 31 - 40	4 = 41- 50	5 = 51 - 60
A2	Gender	1 = female	2 = male	3 = Not Relevant		
A3	Management level	1 = none	2 = Junior management	3 = Middle management	4 = Senior management	5 = Executive management
A4	Department	1 = Sales	2 = Marketing	3 =Research and Development	4 = Manufacturing	5 = Human resources
A5	How long have you been with the organisation?	1 = 0 - 5 years	2 = 6 -10 years	3 = 11 15 years	4 = 16 - 20 years	5 = > 20 years
B	**Control Questions**					
B1	How many subordinates do you have reposting to you?	1 = 0 - 5 people	2 = 6 - 10 people	3 = 11 - 15 People	4 = 16 - 20 people	5 = > 20 people
B2	What is the size of the firm	1 = small	2 = Medium	3 = Large		
B3	How old is the firm?	1 = 0 - 5 years	2 = 6 -10 years	3 = 11 15 years	4 = 16 - 20 years	5 = > 20 years
B4	What is your experience with dealing with post-acquisition integration?	1 = 0 - 5 years	2 = 6 -10 years	3 = 11 15 years	4 = 16 - 20 years	5 = > 20 years
B5	What is the extent of your relatedness/involvement in the acquisition	1 = Highly insignificant	2= Insignificant	3 = Neither significant or insignificant	4 = Significant	5 = Highly significant
C	**Absorptive Capacity**					
C1	External knowledge is adopted quickly for use in products/service development	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
C2	Employees link existing knowledge when developing new products or processes	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
C3	Employees emphasize the systematic reuse of insights from past projects	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
C4	Employees transfer new knowledge into valuable information for our company	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
C5	Employees share new knowledge and make is accessible and available	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
C6	Learning capabilities are an advantage for our firm	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
C7	Employees are able to efficiently apply new knowledge into their practical work	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
C8	"I perfectly understand the knowledge" and "I can easily acquire new knowledge"	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
C9	"I find knowledge sharing rewarding" and "I don't fear they will steal my ideas"	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree

C10	Our employees are used to absorbing new knowledge as well as to prepare it for further purposes and making it available.	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D	**Knowledge Flow**					
D1	Ideals and concepts are communicated effectively across departments/teams	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D2	Different parts of the company work well together to solve problems	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D3	Tools are used to spread knowledge across the whole organisation (e.g., knowledge management systems, intranet, internal studies, best practise guides).	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D4	Face-to-face, cross departmental/team meetings are used to exchange new developments, discuss problems and/or achievements	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D5	Temporary exchanges of personnel between departments/teams are encouraged	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D6	Information flows quickly e.g., if a department obtains important information it is communicated to the relevant peoples	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D7	There is informal contact between employees of all levels and departments	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D8	Employees know who possesses specialist skills and knowledge, and for whom certain information is of interest	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D9	Employees are willing to share knowledge, information and experience with their colleagues	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
D10	Employee trainings and continuous learnings are available to employees	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
E	**Productivity**					
E1	Efficient resource allocation system are established	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
E2	Procedures for building common tools, practices and processes are established	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
E3	Establish appropriate internal mechanisms for transferring competencies and assets across the business units	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree

E4	Integration of information systems infrastructure between merging firms	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
E5	Utilize synergistic attributes of the acquired company with reference to the acquiring company	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
E6	Capture scale economies to save costs through combining two firms within an industry	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
E7	A periodical meeting with experts within our firm for the accumulation of relevant information is occurs	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
E8	In our company ideas and concepts are communicated cross-departmental.	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
E9	Our company uses tools (e.g., intranet, internal studies/reports) to spread knowledge in the whole organization.	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree
E10	Our employees have the ability to structure and use collected knowledge	1 = Strongly Disagree	2 = Disagree	3 = Neither Agree or Disagree	4 = Agree	5 = Highly Agree