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Gordon Institute of Business Science
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Alignment of supplier and customer value co-creation practices in the mining services sector

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A research proposal 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.

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Abstract

In order to remain competitive in a world of increasing knowledge and information ubiquity, service providers have found the need to move from marketing theories grounded in transactional good-dominant logic toward service-dominant logic as first proposed by Vargo & Lusch (2004). Through this transition, service providers have established the ability to differentiate individual customer value propositions for the co-creation of customer value. In order to identify opportunities for value co-creation, service providers have in turn recognised the need for dynamic capabilities and integrated operant resources for the adaption of value propositions to meet the individual needs of customers.

The following research takes the form of a qualitative exploratory study in order to allow for the analysis of favourable co-creation attributes, as well as the degree of alignment between the service provider and customers in routine value co-creation activities. Through the study it is proposed that value creation for the customer depends not only on the ability of customer facing teams to align their propositions to the needs of customers, but also on the ability of the service provider to create internal alignment between support functions and customer facing teams in the organisation. Through this internal alignment it is proposed that greater potential value can be created within the provider sphere, in turn allowing for greater realization of value with the customer.

Keywords: Marketing, value co-creation, service-dominant logic, alignment

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Declaration

I declare that this research project is my own work. It is 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.

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1. Introduction

1.1. The evolving environment of business

The dawn of the information age has introduced notable challenges for traditional goods based companies in the business environment. Possibly of greatest significance to the changing business environment is the increasing rate of change brought about through the access to information and digital technologies. Previously unavailable information and knowledge required for the manufacture of physical products is now readily disseminated throughout developed and developing markets, levelling the playing field for the manufacture of physical products. This rise in competition in goods markets is progressively resulting in the commoditisation of products, placing downward pressure on business margins.

In order to compete in this evolving business environment companies are increasingly turning from transactional goods dominant business models to services dominant business models in an attempt to differentiate themselves from the competition. Having recognised the evolving business environment, Vargo & Lusch (2004) proposed a new dominant theory of marketing replacing pre-existing theories of 'Goods-dominant (G-D) logic'. This new marketing theory of 'Service-dominant (S-D) logic' provided the foundation for the development of 'value co-creation' theory as a mutually beneficial relationship between service providers and customers.

Through value co-creation practices service providers have increasingly allowed for the integration of operant resources within customer operations in order to identify opportunities for the creation of value for both service provider and customer. Through this technique value co-creation allows for the advancement of innovative value propositions for the development and execution of new opportunities for the benefit of both organisations. Integrated operant resources and intangible resources thereby allow service providers a new source of competitive advantage within an increasingly competitive market environment.

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1.2. Introduction to value co-creation

Over the past century, employment in the services sector of the United States (U.S.) economy grew from 30% at the turn of the 19th century (Cronin & Taylor, 1992) to in excess of 80% by the turn of the 20th century (Ward, 2009). Explained by Gaiardelli, Resta, Martinez, Pinto, and Albores (2014), this evolution in business practice was necessitated by the evolving needs and expectations of customers in an increasingly competitive and price sensitive environment. In order to remain competitive in increasingly commoditized markets, traditionally product orientated firms identified the need to engage in service dominant growth strategies (Ulaga & Loveland, 2014).

Through S-D logic as proposed by Vargo & Lusch (2004), service through interaction is regarded as the fundamental basis of exchange, while operant resources are regarded as the source of competitive advantage. Through the increasing availability of information in the global business environment, firms are seeing the accelerated decay of competitive advantage. This is evident in the rate of technological development and decreasing time necessary for the copying or reverse engineering of physical products (Beuren, Gomes Ferreira, & Cauchick Miguel, 2013). This increasing rate of product development has resulted in rapidly increasing competitiveness in the market and elevated price competition through limited differentiation. Through the lens of S-D logic it is evident that increasing access to knowledge, as a source of competitive advantage, will place ever increasing pressure on increasingly commoditised goods markets.

Fundamental to the understanding of service dominant logic is the concept of value-in-exchange as compared to value-in-use. Value-in-exchange through G-D logic emphasises tangible resources and embedded value within a product that is realised through a discrete transaction (Vargo & Lusch, 2004). The concept of value-in-use considers that the value co-creation process takes place over time with the service encounter as the locus of value creation (Giesbrecht, Schwabe, & Schenk, 2017). In this way value is co-created for both customers as well as the service providers through the integration of resources from multiple stakeholders (Bharti, Agrawal, & Sharma, 2015).

Through the application of S-D logic authors have studied the empirical benefits evident through the adoption value co-creation systems. These benefits include increasingly differentiated offerings leading to higher levels of customer satisfaction, longer term

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relationships that in turn increase barriers to competition (Rapaccini, 2015), increased cash flow stability and profitability (Ulaga & Reinartz, 2011).

1.3. Research problem

As emphasised in S-D literature, service forms the fundamental basis of exchange while the service encounter acts as the locus of value creation (Giesbrecht et al., 2017; Kohtamäki & Rajala, 2016; Grönroos & Voima, 2013; Vargo & Lusch, 2008). While multiple studies have been undertaken in order to understand the process leading to value co-creation, this literature is skewed toward an understanding of value co-creation from the production process and service provider perspective (Vargo & Lusch, 2008; Cossío-Silva et al., 2016).

In this way research has allowed for a scarcity of data on the requirements and perspectives of the customer in value co-creation systems and processes (Cossío-Silva, Revilla-Camacho, Vega-Vázquez, & Palacios-Florencio, 2016; Vargo & Lusch, 2008). This is striking owing to the fundamental premise of S-D logic as a customer centric model, with Vargo & Lusch (2008) stating that value is always uniquely determined by the beneficiary.

In the absence of empirical data on value co-creation from the customer's perspective, Preikschas, Cabanelas, Rudiger and Lampon (2017) have questioned the validity of value co-creation research suggesting it resonates poorly with the experience of front line employees. A need therefore exists for a greater understanding of value co-creation practices in the empirical business environment such that the perspectives of the customer can be better understood.

1.3.1. Research purpose

Owing to the scarcity of research on customer purchasing and consumption requirements in value co-creation systems, the purpose of the proposed research is to gain greater understanding of customer requirements in a dyadic value creation process. Through this understanding it is proposed that service providers may be able to align their value propositions and value co-creation practices to better meet the focus areas

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of customers. It is further suggested that through realignment of resource, service providers may be able to increase customer performance and satisfaction ultimately allowing for greater return on investment.

1.3.2. Research objectives

In order to obtain a better understanding of whether or not the existing value co-creation practices of service providers meet the needs of customers, two objectives are proposed through the following research. The first objective of the research aims to identify the desired value co-creation practices and focus areas of both the customer and service provider. Given the scarcity of research and empirical data on the focus areas of service providers and customers in daily business interactions, this will be obtained through an inductive exploratory study of the customer.

Having obtained a greater understanding of the focus areas of both customers and service providers, the second objective of the research is to evaluate the alignment of value co-creation practices of service providers in meeting the desired practices and focus areas of customers in daily business practices. This is to be undertaken through a co-occurrence analysis in order to determine the degree to which service providers adapt their value propositions and co-creation practices to meet the focus areas of customers.

Following these objectives the purpose of the research is twofold. Firstly to gain an understanding of customer requirements in the value co-creation process for the purpose of supplier resource optimisation. Secondly, through the evaluation of supplier and customer perspectives in existing value co-creation activities it is possible to explore factors affecting the alignment of supplier and customer co-creation processes.

1.4. Academic purpose

In order to obtain a better understanding of the customer value co-creation requirements, researchers have highlighted the need for further empirical studies on value co-creation (Petri & Jacob, 2016; Aarikka-Stenroos & Jaakkola, 2012; Payne et al., 2008; Töllner et al., 2011). It is further noted that a significant majority of research undertaken on value co-creation is undertaken from the perspective of the service provider (Cossío-Silva et

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al., 2016). As such the need exists to explore the value co-creation practices and requirements as perceived by the customer. Finally, the research aims to provide insight into factors affecting the alignment of value co-creation practices between suppliers and their customers.

1.5. Business purpose

Through the application of value co-creation practices it is possible for service providers to differentiate their value propositions within the business environment. In order to achieve optimal effectiveness and benefit from supplier resources in customer value co-creation processes, it is necessary to understand the focus areas perceived by the customer to be of greatest importance to value co-creation. Further, by identifying the areas of greatest importance to the customer it is possible to establish whether existing service functions, capabilities and resources are adequately structured to achieve optimal value co-creation in practice.

In order to gain a greater understanding of value co-creation, theoretical and empirical research including the influence of seminal authors on S-D logic and value co-creation is discussed in chapter 2 below. Through this understanding a research methodology is proposed to understand the alignment of supplier and customer needs in value co-creation activities.

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2. Literature review

2.1. The evolution of service-dominant (S-D) logic

Following publication of the journal article 'Evolving to a New Dominant Logic for Marketing', by authors Vargo & Lusch (2004), services marketing took an important change in direction. Through their work, seminal authors Vargo & Lusch (2004), directed marketing theory away from the pre-existing model of exchange, influenced by Smith's 1904 seminal work on economics (Vargo & Lusch, 2004).

While traditional models of value through exchange focused on tangible resources, embedded value and discrete transactions, the new theory proposed by Vargo & Lusch (2004) guided marketing theory toward intangible resources, the co-creation of value, interactivity and relationships (Vargo & Lusch, 2004; Vargo & Lusch, 2008). The 2004 work of Vargo & Lusch thus forms the watershed in marketing theory between goods-dominant (G-D) logic, or 'value-in-exchange' and service-dominant (S-D) logic, or 'value-in-use' (Vargo & Lusch, 2004; Grönroos, 2012; Lenka, Parida, & Wincent, 2017), that in turn forms the foundational theory for value co-creation.

In the establishment of S-D logic Vargo & Lusch (2004) proposed nine foundational premises on which the new dominant logic was grounded. Through criticism of the phrasing of the foundational premises of S-D logic, Vargo & Lusch (2008) later refined the foundational premises of S-D logic while proposing one additional premise. When coupled with the first premise these principles arguably highlight the purpose of S-D logic, a customer centric approach to marketing theory.

As proposed by (Vargo & Lusch, 2008) under the nine foundational principles, knowledge and skills enacted through operant resources, form the fundamental source of competitive advantage (Bharti et al., 2015). With the interactions and service encounters of operant resources with customers forming the basis for the fundamental unit of exchange (Vargo & Lusch, 2008), interaction through service provision thus forms the locus for value co-creation with the customer (Giesbrecht et al., 2017; Kohtamäki & Rajala, 2016; Grönroos & Voima, 2013; Vargo & Lusch, 2008). As value forms as a product of all social and economic actors between the customer and service provider

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and is determined uniquely by the beneficiary of service provision, it is vital that service providers understand their value proposition from the customer's perspective (Kuijken, Gemser, & Wijnberg, 2016; Farr, 2016; Vargo & Lusch, 2004).

Table 1, The ten foundational premises of service-dominant logic

Foundational premises of service-dominant logic

	Original foundational premise (2004)	**Modified foundational premise (2008)**
FP1	The application of specialised skills and knowledge is the fundamental unit of exchange	Service is the fundamental basis of exchange
FP2	Indirect exchange masks the fundamental unit of exchange	Indirect exchange masks the fundamental basis of exchange
FP3	Goods are a distribution mechanism for service provision	Goods are a distribution mechanism for service provision
FP4	Knowledge is the fundamental source of competitive advantage	Operant resources are the fundamental sources of competitive advantage
FP5	All economics are services economics	All economics are service economics
FP6	The customer is always a producer	The customer is always a co-creator of value
FP7	The enterprise can only make value propositions	The enterprise cannot deliver value, but only offer value propositions
FP8	A service centred view is customer orientated and relational	A service-centred view is inherently customer orientated and relational
FP9	Organisations exist to integrate and transform microspecialised competencies into complex services that are demanded in the marketplace	All social and economic actors are resource integrators
FP10		Value is always uniquely and phenomenologically determined by the beneficiary

Source: Vargo & Lusch, 2004; Vargo & Lusch, 2008
The ten foundational principles of S-D logic as proposed in 2004 and following correction in 2008.

With service provision forming the fundamental unit for the basis of exchange (Vargo & Lusch, 2008), tangible goods act only as appliances for service provision through their

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application (Vargo & Lusch, 2004). Thereby dispelling the theory of G-D logic that emphasised the discrete exchange of value through embedded value and tangible goods. As such marketing theory shifted away from the understanding of value as a singularly economic event toward the S-D logic approach to value co-creation through both social and economic value mechanisms (Aarikka-Stenroos & Jaakkola, 2012, Kohtamäki & Rajala, 2016).

2.2. The emergence of value co-creation

In line with S-D logic, value co-creation disregards the concept of embedded value through tangible resources and discrete transactions (Vargo & Lusch, 2004). Though first introduced toward the end of the 21st century (Grönroos, 2012), the theory of value co-creation has seen a significant increase in popularity in recent years following the work of Vargo and Lusch (2004) (Bharti et al., 2015; Ranjan & Read, 2016).

Value co-creation is defined as the creation of value for the customer through the joint actions of the customer and service provider through direct interactions (Grönroos, 2012). Value co-creation as such is rooted in marketing theory and speaks to the evolving business environment through the move from a goods dominant paradigm to a services dominant paradigm (Kohtamäki & Rajala, 2016). Value co-creation theory agrees with S-D logic theory in that value emerges over time as a function of firm and customer interaction (Frow, Payne, Wilkinson, & Young, 2011; Grönroos, 2012; Vargo & Lusch, 2008; Lenka et al., 2017) through social and economic value creation mechanisms.

With service provision through interaction forming the basis for value creation, Grönroos (2012) proposed three sub-process through which value could be created. These three sub-processes as depicted in Figure 1 below include:

(1) Provider sphere - the service provider as a value facilitator acting alone on operand resources in the creation of potential value for the customer. This potential value can only be realised on entering the customer sphere, no customer involvement;

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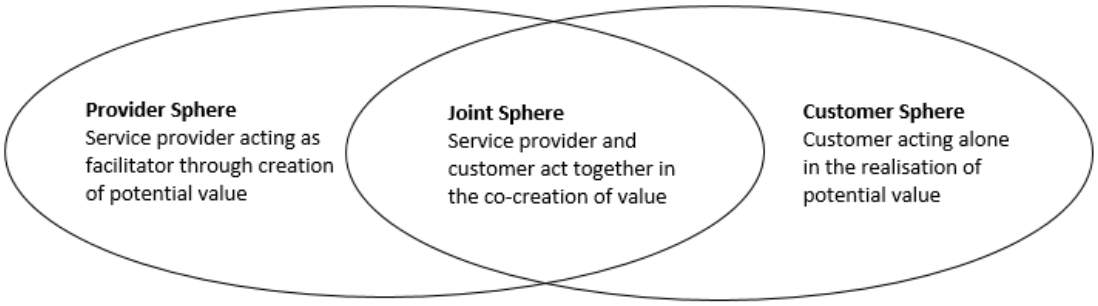
(2) Customer sphere - the customer acting alone and closed to the service provider, creating real value through the integration of provider operant resources, no supplier involvement;
(3) Joint sphere - through integrated and co-ordinated dialogical processes to create customer value-in-use. Through this process the service provider acts a co-creator of value with the customer.

Figure 1, Spheres of value creation



Source: Grönroos & Voima, 2013
Spheres of service provider and customer interaction through the value creation process.

In order to better define the value creation processes (Grönroos & Voima, 2013) redefined existing concepts of value co-creation highlighting value co-creation as a broad overarching concept outlining the entire chain of value creation. Through value-in-use, value can only be realised through the use of goods and service by the customer and as such can only occur within the customer sphere either with or without customer involvement. This allows for the determination of value co-creation through economic principles as a trade-off between value-in-use and the required sacrifice of the customer (Aarikka-Stenroos & Jaakkola, 2012).

Following the proposal by (Grönroos & Voima, 2013), Lombardo and Cabiddu (2016) posited that the integration and interaction of resources in the value co-creation process was influential not only on the dyadic problem solving process, through value-in-use in the joint sphere, but equally important to the identification of opportunities for further value co-creation. On the contrary, Preikschas, Cabanelas, Rudiger and Lampon (2017) raised the question as to whether theories on value co-creation are reflective of the

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empirical business environment, identifying positively skewed research on value co-creation while suggesting that value co-creation theory has been shown to resonate poorly with empirical data from front line employees. Echeverri & Skalen (2011) and Grönroos (2012) further pointed out that while positive value creation may be construed as the 'purpose' of value co-creation theory, it is fundamentally important to note that customers may become either better off or worse off through 'value-in-use'. It follows that while value co-creation to the benefit of parties may increase customer satisfaction, detrimental effects through 'value co-creation' may similarly influence customer satisfaction.

Another challenge of significance to service providers in the change from a discrete transactional business model to interactive services based business models is that of the 'services paradox' (Gaiardelli et al., 2014). While transactional business models experience lower overheads as a result of handover at the point of transaction in the provider sphere, services based models experience higher overheads due to their requirement for varying degrees of product support through value-in-use in the joint sphere. As a result of these increased overheads businesses expanding into service models often fail to achieve return on investment despite the increased value they offer the customer (Gaiardelli et al., 2014).

One possible method of addressing the service paradox is through co-production as defined by Ranjan & Read (2016). Co-production is similarly a subset of value co-creation, through which customers engage with service providers either directly or indirectly in the creation of value. While customers are able to co-create products with suppliers in order to meet their individual requirements, co-production limits financial risk by inviting the customer to interact with the service provider within the service provider's ecosystem.

2.3. Value co-creation in practice

With a need to put the customer experience at the centre of the value proposition (Farr, 2015), it is necessary during the implementation of value co-creation practices to interpret the unique requirements of each individual customer (Vargo & Lusch, 2008; Lombardo & Cabiddu, 2016). Through an understanding of the requirements of specific

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customers, it is possible to customise the value proposition to individual customers in line with their areas of greatest focus. However, as described by Aarikka-Stenroos & Jaakkola (2012) it is not simply the predisposition to service variables and focus of each customer that influences their perception of value, but also the way in which service providers interact with customers that influences the value expectations of a customer. This in turn may lead to unfulfilled expectations and dissatisfaction from the customer (Preikschas et al., 2017).

In order to customise the services provided to individual customers in a diverse business environment it is necessary for companies to enhance their dynamic capabilities to allow for rapid customisation of value co-creation practices (Preikschas et al., 2017). Through this approach it is possible for service providers to identify changing requirements and respond to changes in customer requirements in order to maximise value co-creation practices. Preikschas et al. (2017) found that co-creation practices enhanced companies dynamic capabilities linked to adaption, knowledge and innovation resulting in increased retention of industrial customers. The involvement of customers in product innovation and development was found to have a significant impact on customer wellbeing (Marcos-Cuevas, Nätti, Palo, & Baumann, 2016; Preikschas et al., 2017) while at the same time reducing the impact of the service provider on the environment (Marcos-Cuevas et al., 2016).

Service providers who adopt innovation capabilities spanning the life-cycle of the product were also able to successfully reduce ownership costs (Beuren et al., 2013), in turn improving the value proposition to the customer (Kohtamäki & Rajala, 2016; Skålén, Gummerus, von Koskull, & Magnusson, 2014). It is therefore evident that through the application of these practices, customers who are prepared to engage in the ongoing development of service processes with the service provider are likely to receive the benefits of value co-creation as defined above while at the same time experiencing improved service (Grönroos, 2012).

Customers who are however not prepared to engage with service providers in the value co-creation process are more likely experience the destruction of value. This is likely to take place through the inability of the service provider to integrate within the organisation for the identification of areas of continuous improvement and value creation. It follows

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that through the absence of integration, the opportunity for the service provider to create a customised customer experience suited to the individual needs of the customer will be lost (Kohtamäki & Rajala, 2016), reducing the ability of the service provider to effectively meet the needs of the customer (Lenka et al., 2017; Prahalad & Ramaswamy, 2004)

2.4. Value co-creation through the sales-force

While integration of operant resources is fundamental to the successful identification and resolution of problems on customer operations, relationships that are formed between customers and service providers through interaction likewise play a significant role in the successful delivery of value to customer operations. As proposed by Chan, Yim, & Lam (2010), both personal and organisational relationships as well as loyalty play an important role in the creation of value through successful service delivery and value creation. It is suggested that this in turn needs to be supported through clearly defined and communicated roles in the dyad (Chan et al., 2010).

Through exploratory research (Ulaga & Loveland, 2014) confirmed anecdotal evidence suggesting that transitioning of the sales force is a significant consideration in the shift from a goods dominant to service dominant strategy. High performing sales personnel for value-in-use firms differed from high performing sales personnel for value-in-exchange firms in several key personality traits (Ulaga & Reinartz, 2011). Sales personnel suited to value-in-exchange would thus not be guaranteed success in the service environment with one third of the workforce requiring extensive training, while it was unlikely that one third would be able to make the transition (Ulaga & Loveland, 2014).

The seven most cited traits necessary for the sales-force to actively engage in value co-creation experiences through value-in-use included (Ulaga & Loveland, 2014) learning orientation, customer service orientation, intrinsic motivation, general intelligence, emotional stability, teamwork orientation and introversion (low extraversion).

2.5. Limitations of existing research

Three areas of limitation exist in the existing body of research on S-D logic and value co-creation. Firstly, the concept of value co-creation has been described as too

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metaphorical or theoretical and as such has lacked the role specification for customers and service providers. This has prevented a theoretically sound foundation for the development of the value co-creation framework (Grönroos & Voima, 2013) and barriers to empirical analysis (Grönroos, 2012).

A second criticism of the work on value co-creation is that while it has attracted significant research in recent years (Kohtamäki & Rajala, 2016), value co-creation research remains in a fledgling state. This has resulted in the exploration of theoretical perspectives (Ranjan & Read, 2016) in the absence of empirical research. In order to provide support for the continued development of the study a need exists for further empirical research (Petri & Jacob, 2016; Aarikka-Stenroos & Jaakkola, 2012; Payne et al., 2008; Töllner et al., 2011).

Thirdly, while multiple studies have been undertaken in order to understand the value co-creation process from a supplier or production perspective, limited data is available on the perception of value by the customer (Cossío-Silva, Revilla-Camacho, Vega-Vázquez, & Palacios-Florencio, 2016; Vargo & Lusch, 2008).

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3. Research questions and empirical objectives

Through the proposed research the author aims to add to the existing body of research on value co-creation thereby allowing for the continued development of the field of study. Information gathered through the empirical investigation of value co-creation, in the industrial business environment, will be used to draw conclusions to the three research questions identified below. Research questions I and II allow for the collection of inductive exploratory data from two units of analysis allowing for later comparison in order to draw conclusions to question III. Research question I and II as such form secondary objectives of the study while research question III forms the primary objective of the research.

Research question I: What supplier attributes and competencies are regarded by ***customers*** as the most important in the creation of value through routine business activities?

Research question II: What attributes and competencies do ***suppliers*** believe are most important in the creation of customer value in routine business activities?

Through the exploration of the two secondary research questions defined above, inductive data can be analysed and compared to draw a comparison of the focal areas of both suppliers and customers in daily value co-creation activates. Through this comparison it is possible to answer research question III as defined below:

Research question III: What areas of alignment and misalignment can be identified between the customer and service provider in daily value co-creation practices, and through this understanding of customer focus areas is it possible for service providers to realign their operations to increase value co-creation practices and the subsequent value proposition to the customer.

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4. Research methodology and design

4.1. Methodology

In order to gain greater appreciation for the alignment of supplier and customer value co-creation practices in the industrial business environment the following research approach follows a qualitative research design. Through this exploratory research design, interpretivist research will be undertaken for the collection of inductive data (Cunningham, Weathington, & Pittenger, 2012; Saunders & Lewis, 2012). This will be undertaken in order to allow for rich data to be collected on the interpretivist concept of value co-creation due to the scarcity of data from the customer perspective (Cunningham et al., 2012; Schwartz-Shea & Yanow, 2014). In order to establish the requirements for value co-creation activities, the study first aims to build through grounded theory an appreciation of value co-creation practices favoured by customers in daily business practices before evaluating whether or not these practices are being met (Cunningham et al., 2012).

Research data required for the analysis of the value co-creation construct is to be obtained through semi-structured interviews with representative samples of a customer population from a single common service provider. Through this approach inductive research data will be both content and thematically coded to allow for content analysis as well as the creation of value co-creation themes (Cunningham et al., 2012). Themes identified through the study will then be analysed through frequency and co-occurrence analysis in order to allow for the triangulation of customer and supplier value co-creation activities (Cunningham et al., 2012). The exploratory semi-structured interview methodology selected for the study will be used as a cross sectional mono-method evaluation of the favourable customer value co-creation practices (Cunningham et al., 2012; Saunders & Lewis, 2012).

In order for suppliers to meet the requirements of customers, it is first necessary for the suppliers to gain an understanding of the individual requirements of each customer in order to identify opportunities for contribution to value co-creation activities (Preikschas et al., 2017; Vargo & Lusch 2004). Through the use of a common supplier and customer base for the research study, it is possible to eliminate extraneous variables that may exist

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between different customer and service provider populations.

Through the first stage of the research ten customers will be interviewed in order to determine the value co-creating practices perceived to be most favourable to a representative sample of the customer population. This first set of research data will then be compared to the second phase of data collection, ten similarly inductive interviews of the customer facing marketing and sales managers within the service provider organisation. Following the second set of interviews it is then possible to determine the degree to which the service provider is aligned to the areas perceived by the customer to be most favourable to the co-creation of value for the customer. Further, through comparison of the capabilities identified as favourable by customers and the capabilities determined to be favourable by the supplier, it is possible to determine opportunities for improvement in value co-creation practices between the customer and service provider.

4.2. Population

In order to gain access to suppliers and customers who interact in a mutual value co-creation process, two overlapping populations were identified for the proposed study. The first population is the internal customer facing team of an international services provider within the mining industry. The second and corresponding population is in turn the customer base of management personnel in the mining industry with whom the service provider and its employees interact. The service provider is an industrial supplier of products and services with a historical footprint in South Africa. For the purpose of this research both supplier and customer populations will be limited to the management teams responsible for the provision and management of service interactions between the two populations forming the units of analysis (Schwartz-Shea & Yanow, 2014).

The customer population of mining operations accounts for approximately one third of mining operations within the universe of mining operations across Southern Africa (Saunders & Lewis, 2012). As management of these operations have had previous encounters and relationships with the service provider, customer facing teams of the service provider have had the opportunity to interact with customers, an important consideration in the identification of opportunities for value co-creation (Preikschas et al., 2017).

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The demographic profiles of the two populations are significantly skewed toward males due to the prevalence of males throughout management structures in the mining industry. As simple random sampling was not possible due to the difficulty of gaining access to management teams within the customer population, stratified and purposive sampling were used in the identification of personnel that could be accessed for interviews. Stratification of both populations was undertaken both vertically by management level as well as horizontally by operational environment. While a range of backgrounds and skill sets are present within the operational management teams, a large number of engineering and operations personnel are present within the management teams (Cunningham et al., 2012).

4.3. Unit of analysis

Two units of analysis have been selected for the proposed research in order to allow for a study of alignment in value co-creation practices. The two units of analysis selected for the study include management of the customer facing teams of the service provider as well as the respective customer population of mine management in Southern Africa. While the sample population is limited to customers who interact with the service provider, it is anticipated that they are largely representative of the greater population or universe of managers within the South African mining industry (Cunningham et al., 2012).

Through the inductive research proposed, independent variables that are identified to have an influence on value co-creation between the customer and service provider populations will be highlighted with respect to the individual populations. The units of observation in the study are the representative individuals for the two populations made up of customer facing managers from the service provider who interact with the customer, as well as production and mine management from the customer population.

4.4. Sampling method and size

Given the exploratory nature of the study and the use of a semi-structured interview guide the sample size determined for the research has been limited to ten customer

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interviews and ten service provider interviews. The sample size of ten service providers is representative of the sample population, being made up of 50 customer facing managers in the Southern African region. The size of customer sample while being questionably representative of the sample population of customers with whom the service provider interacts directly, is less representative of the customer population of universe given the larger number of operations and management teams in the greater industry. As such the sample size represents only a small percentage of mine management.

Non-probability purposive and stratified sampling techniques are to be used to identify customers and managers who have in the past engaged or are currently engaging in value co-creation practices with the supplier (Cunningham et al., 2012). Further, due to the various management levels present in service provider and customer populations, participants will be selected such that a cross sectional understanding can be achieved from both the service provider and customer populations (Saunders & Lewis, 2012).

4.5. Measurement instrument

Research is to be undertaken through an inductive exploratory approach, through the use of a semi-structured interview guides as indicated in appendix 4.1. Through the use of standardized interview guides, reliability and consistency of results can be maintained such that data produced can be used in the analysis of results both through content and thematic analysis techniques (Saunders & Lewis, 2012). Through the use of a digital voice recorder this analysis will take place subsequent to the completion of interviews.

In order to cater for both customer and service provider populations, interview guides are standardized addressing the same practices and opportunities for value creation through a common set of questions aligned to the sample groups. Questions are prepared in an open ended manner such that participants have the opportunity to identify the areas of greatest significance to them throughout the interview process. Unscripted probing questions will further be used to gain a greater understanding and richness of data in the areas highlighted by participates (Gillham, 2005).

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4.6. Data gathering process

Data required for the research proposal will be obtained through inductive semi structured interviews through the use of an interview guide. Through this mono-method research technique it is possible for codes and themes to emerge allowing for rich data to be collected through the high engagement process. Given the use of semi-structured interviews, greater insight will be gained through unscripted probing questions (Cunningham et al., 2012; Gillham, 2005).

Following completion of the first interviews from both the service provider and customer sample groups, interview guides will be assessed for clarity and purpose before continuing interviews with the remainder of the sample group (Saunders & Lewis, 2012). Service provider interviews will be completed prior to the start of customer interviews. This will be undertaken in order to prevent insights gained through the customer group from influencing subjective views of the interviewer prior to the completion of service provider interviews (Cunningham et al., 2012). Once the ten service provider interviews have been completed, ten customer interviews will be undertaken to allow for the comparison of data as per research question III.

Identification of candidates for the study will be undertaken as per the sampling method described above with interviews scheduled in advance. Non-probability sampling will be used through purposive and stratified sampling methods, this given the challenges present in the use of simple random sampling in qualitative research (Cunningham et al., 2012). Time allocation per interview is proposed at 45 minutes in order to allow adequate time for rich conversation on the guided interview topics. Interviews will be scheduled at the interviewee's premises at a time suitable to the candidate for meaningful engagement.

At the outset of the interview candidates will be briefed on the anonymity of their involvement in the study, their ability to withdraw from the study at anytime, as well as be provided a brief outline of the purpose of the study. All interviews will be recorded with a voice recorder for transcribing at a later date. Permission for the use of a voice recorder shall be confirmed through the letter of consent prior to the start of all interviews.

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4.7. Analysis approach

Qualitative research data generated through the interview process will be coded through the use of Atlas ti coding software. Both descriptive content codes and attribute codes will be created in order to allow for the triangulation of interview results through frequency and content analysis (Cunningham et al., 2012). Following the emergence of inductive descriptive codes emergent themes or code families will be created for the categorisation of codes for thematic analysis of the principal focus areas of customers and suppliers.

Thematic analysis is to be undertaken through the use of both frequency and co-occurrence analysis in order to determine the areas perceived to be of greatest significance to customers and service providers. The use of attribute codes will further allow for the determination of perceived strengths and weaknesses within each sample group (Cunningham et al., 2012; Flick, 2007; Gillham, 2005). In this way data produced through supplier and customer interviews will be analysed independently prior to the evaluation of alignment. Coding saturation will be monitored through the coding process as an indication of the completeness of data for the sample groups (Saunders & Lewis, 2012).

4.8. Limitations and ethical considerations

Qualitative research by its very nature is a subjective research process that is dependent on the knowledge of the researcher and easily influenced through biases and preconceptions throughout the collection and interpretation of data (Cunningham et al., 2012; McCracken, 1988; Saunders & Lewis, 2012). This was illustrated by McCracken (1988) who proposed that preconceptions are the enemy of qualitative research, while Saunders & Lewis (2012) highlighted the point that these problems can be compounded due to the inexperience of the researcher.

Further limitations of the proposed research include the use of limited sample sizes as well as a single industrial application in order to test the alignment of value co-creation practices between customers and service providers. Sample selection methods represent further challenges to the representation and validity of the research due to the requirement for non-probability purposive and stratified sampling methods (Cunningham

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et al., 2012). While this study is intended to provide insight into the state of development of value co-creation practices across the specific customer and service provider relationship through a cross sectional study, complementary research is required in alternate environments to test the broader validity of results (Saunders & Lewis, 2012). Further testing of the alignment of customer and service providers is therefore required not only in adjacent business environments, but also in other regions given the potential regional limitations of the proposed study within the South African context.

As discussed in section 4.6 above, the methods through which data is collected and reported are fundamental to ethical standards and considerations through the research process. Growing emphasis on ethics in research highlights that research must not only be methodically sound but also morally defensible (Saunders & Lewis, 2012). In accordance Gibs ethics guidelines and ethical clearance practices will be applied throughout the course of the proposed research.

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5. Results

5.1. Sample group description

Table 2, Interview list with participant attributes

Participant	Company	Field of operations	Size of operation/s	Management level	NQF Level	Experience	Office location	System Focus
Supplier A	Supplier	Surface	-	Medium	NA	10-20 yrs	Site	Low
Supplier B	Supplier	Surface	-	Medium	NA	10-20 yrs	Regional	High
Supplier C	Supplier	Surface	-	Senior	NA	>20 yrs	Central	High
Supplier D	Supplier	UG	-	Senior	NA	>20 yrs	Central	Low
Supplier E	Supplier	Surface	-	Senior	NA	>20 yrs	Central	High
Supplier F	Supplier	UG	-	Senior	NQF 4-6	10-20 yrs	Central	Low
Supplier G	Supplier	UG	-	Senior	NQF 7<	10-20 yrs	Central	Low
Supplier H	Supplier	Tech.	-	Medium	NQF 7<	<10 yrs	Central	High
Supplier I	Supplier	Tech.	-	Senior	NQF 7<	<10 yrs	Central	High
Supplier J	Supplier	Surface	-	Senior	NQF 4-6	10-20 yrs	Central	Low
Customer A	Company 1	UG	Large	Senior	NQF 7<	10-20 yrs	Central	High
Customer B	Company 1	UG	Large	Senior	NQF 7<	10-20 yrs	Central	High
Customer C	Company 2	UG	Large	Senior	NQF 4-6	<10 yrs	Central	High
Customer D	Company 3	Surface	Small	Medium	NQF 7<	<10 yrs	Site 1	Low
Customer E	Company 4	Surface	Medium	Senior	NA	<10 yrs	Site	Low
Customer F	Company 4	Surface	Medium	Medium	NA	>20 yrs	Site	Low
Customer G	Company 3	Surface	Small	Senior	NQF 4-6	10-20 yrs	Central	High
Customer H	Company 3	Surface	Small	Medium	NA	10-20 yrs	Site 2	Low
Customer I	Company 3	Surface	Small	Senior	NQF 7<	<10 yrs	Central	Med.
Customer J	Company 5	Surface	Small	Senior	NA	>20 yrs	Site	Low

Source: Participant interviews
Comparison of participant attributes for service providers and customers interviewed through the research study.

In order to allow for the analysis of value co-creation practices between customers and suppliers, favourable practices as highlighted through interviews with ten suppliers and ten customers are discussed below. Non-probability purposive and stratified sampling methods were used to identify potential customers who recently interacted with the service provider in value co-creation activities and who could be accessed through available networks (Cunningham et al., 2012). Customers and service providers selected

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for interviews were identified based on their interactive roles within the organisation together with consideration for their operational environment (underground or surface operations) as well as management level. Participant attributes are listed in Table 2.

Interviews were undertaken at service provider and customer central offices for centralised personnel and in site offices for operational personnel, and all interviews were recorded for transcription following the interview. At the outset of interviews, minor alterations were made to both the customer and service provider interview guides to address grammatical errors and for clarification purposes. In order to prevent researcher preconceptions influencing results assigned to the service provider, all ten supplier interviews were conducted prior to the ten customer interviews. This process was undertaken such that a firm understanding of supplier focus areas could be obtained without undue influence from customer interviews (Cunningham et al., 2012).

Table 3, Comparison of participant subgroups by attributes

Sample Subgroup	All Customers	All Suppliers	Customer Surface	Supplier Surface	Supplier Tech.	Customer Underground	Supplier Underground
MIDDLE MANAGEMENT	4	5	3	2	1	1	2
SENIOR MANAGEMENT	6	5	4	3	1	2	1
EXPERIENCE -10YRS	5	2	4	0	2	1	0
EXPERIENCE 10-20YRS	4	5	2	3	0	2	2
EXPERIENCE +20YRS	1	3	1	2	0	0	1
NO FORMAL TRAINING	4	4	4	3	0	0	1
NQF LEVEL 4-7	2	3	1	2	0	1	1
NQF LEVEL 7<	4	3	2	0	2	2	1

Source: Participant interview analysis
Comparison of participant subgroups through the analysis of attribute codes identified in the interview process.

5.1.1. Customer sample group

Of the ten participants selected for the customer sample group all ten were male, consistent with the demographics of operational managers within the customer population. With the majority of the supplier's operations in the surface mining industry, seven of the participants worked in surface mining operations across three mining companies. The remaining three participants interviewed were employed within

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underground mining operations across two mining companies.

It is important to note that due to the availability of customers, two changes were made during interview processes. Firstly, due to senior customers at a large mining company declining to be recorded, together with the failure to secure a suitable replacement for senior managers on large surface operations, thematic analysis of research data for surface operations is skewed toward small to medium sized mining operations. Secondly, due to customer time constraints, Customer E & Customer F were interviewed simultaneously and transcribed in a single interview with identification for each respondent.

As illustrated in Table 3 above, six of the customer participants held senior manager positions in their respective operations, while the four remaining participants held middle management positions. Five of the ten participants had less than ten years' experience at their existing companies, while four participants held between ten and twenty years of experience, while one participant held in excess of twenty years of experience. Of the customer participants, four had no formal qualification, two held National Qualification (NQF) levels between five and seven, while four again had an honours or equivalent degree above NQF level seven. Of the ten candidates, five candidates held positions in central offices while the remaining five held offices distributed across their various mining operations.

5.1.2. Service provider sample group

Service provider participants in the research study similarly comprised ten male employees from within customer facing departments of the organisation. Of the ten supplier employees interviewed, three participants were selected from the management team for underground operations, five participants from the management team for surface operations and two participants from the technical services team for surface operations. Participants interviewed across all three departments held middle to senior management positions in customer facing roles.

Of the ten service provider participants interviewed, five participants held positions on senior management level while the remaining five held positions on middle management

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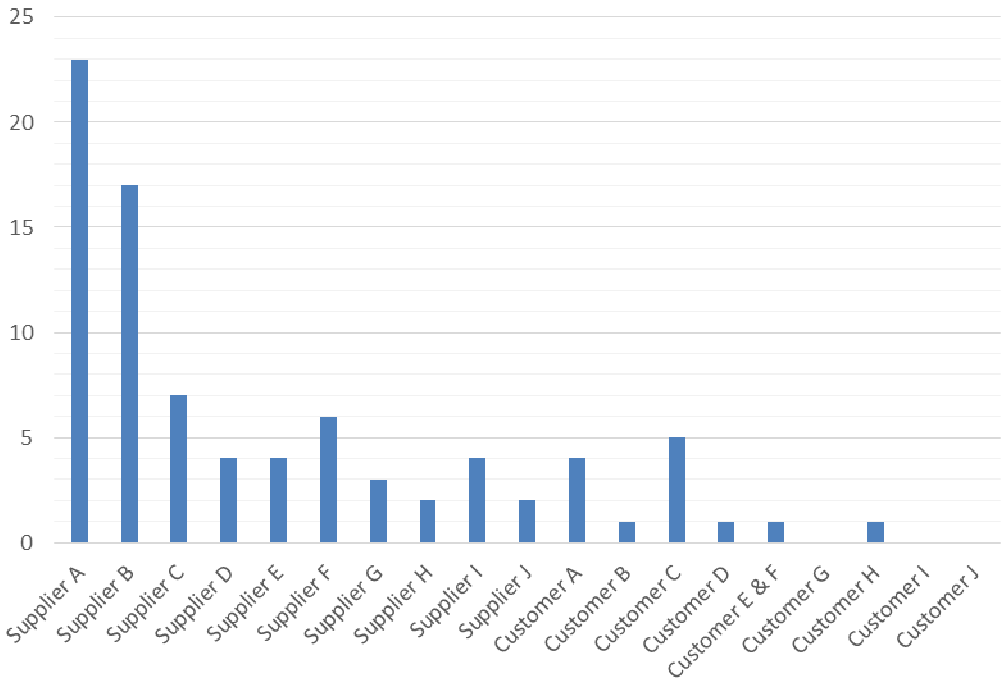
level. Service periods for the service provider sample group were higher than for the customer sample group with three participants with service periods longer than twenty years, five with service periods between ten and twenty years and two with service periods shorter than ten years. While formal training and NQA levels were consistent on aggregate with the customer sample group, the technical services department was skewed to higher NQF levels and shorter service periods, while the highly experienced surface operations department was skewed toward lower NQF levels and higher service periods.

Figure 2, Illustration of coding saturation by interview



Source: Participant interview analysis
Illustration of coding saturation for all 20 participants interviewed through the research study in order of coding. All ten supplier interviews were coded prior to the ten customer interviews.

During the coding of service provider and customer interviews the creation of new codes was monitored in order to obtain an understanding of coding saturation. This is illustrated in Figure 2 above for all twenty participants in the study. Through the graph it is evident that coding saturation for the study was reached at the 18th interview. Despite the change from service provider to customer at the midpoint of the data analysis, only a small

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increase in the number of codes was identified in the customer sample. This data suggests a high degree of commonality in the viewpoints of both service providers and customers.

5.2. Research results

Through the inductive study 44 attribute codes together with 75 descriptive codes were created to evaluate and cross analyse the responses received from the 20 respondents interviewed throughout the duration of the study. On completion of the coding process classification codes together with emergent codes were classified according to purpose as either an attribute or descriptive code. Following classification, attribute codes were divided into one of nine attribute code families, while descriptive codes within the study were classified into one of eight descriptive code families as illustrated in Appendices 8.2 & 8.3. From Appendices 8.2 and 8.3 it is evident that through the study the most commonly occurring codes encountered in the study include:

1. Customer service – 68 code occurrences
2. Communication to customer – 49 code occurrences
3. Skills & training – 49 code occurrences
4. Relational – 47 code occurrences
5. Information management – 44 code occurrences
6. Flexibility – 37 code occurrences

Following the coding process the 75 descriptive codes identified through the study were ranked according to frequency of occurrence with which the cumulative customer sample identified individual codes within the study. The top 30 descriptive codes identified through this process are listed by code frequency in Table 4 below, while the cumulative code frequency for each of the eight descriptive code families is listed by code frequency in Table 5.

In order to allow for the comparison of results across various customer and service provider sample groups, results for both descriptive codes and descriptive code families were then further divided into surface, underground and technical services for both

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customer and service provider. This has been undertaken to allow for greater insight into focus areas within the various subgroups based on individual operating environments.

Table 4, Top 30 codes identified by cumulative customer sample by frequency analysis

Code Frequency	All Customers	All Suppliers	Surface Customers	Surface Suppliers	Technical Services	Underground Customers	Underground Suppliers
Customer service	9%	6%	12%	4%	5%	7%	9%
Relational	6%	4%	4%	1%	1%	8%	10%
Flexibility	4%	3%	10%	6%	1%	0%	1%
Measurement	4%	1%	2%	2%	0%	6%	0%
Customer coaching/training	4%	2%	4%	1%	1%	4%	3%
Customer support/backup	4%	2%	5%	1%	3%	3%	2%
Information man./availability	4%	5%	4%	7%	3%	3%	4%
Product application	4%	1%	5%	2%	1%	3%	0%
Verbal(phone/skype)	4%	3%	6%	4%	3%	1%	2%
Mine optimisation focus	3%	3%	2%	5%	1%	5%	0%
Product quality	3%	3%	2%	2%	1%	4%	6%
Skills & Training	3%	6%	4%	6%	7%	3%	6%
Cost focus	3%	1%	1%	1%	0%	4%	1%
Information reporting	3%	2%	1%	3%	4%	4%	1%
BME Technical team	3%	3%	5%	3%	4%	1%	1%
Communication to Customer	3%	7%	3%	3%	6%	2%	13%
Arrogance v Respect	2%	0%	0%	0%	0%	4%	0%
Email	2%	2%	3%	3%	3%	1%	2%
Practical experience	2%	1%	3%	2%	1%	1%	1%
No BME man. interaction	2%	1%	2%	1%	0%	2%	1%
Proactive	2%	3%	2%	4%	2%	1%	3%
Honesty	2%	2%	0%	2%	1%	3%	2%
Product development	2%	4%	0%	2%	6%	3%	4%
Reliability	2%	2%	4%	4%	0%	0%	2%
Capacity & competencies	1%	1%	0%	1%	2%	2%	1%
Common purpose	1%	1%	3%	1%	0%	0%	1%
Contract & KPIs	1%	2%	2%	2%	3%	0%	2%
Face to face	1%	3%	2%	3%	4%	1%	3%
Risk	1%	3%	0%	3%	2%	2%	2%
Trust	1%	1%	0%	1%	0%	2%	1%

Source: Participant interview analysis
Top 30 codes identified by cumulative customer sample through the use of frequency analysis for respondent subgroups.

While customer service, relational and flexibility are prominent codes in both customer and supplier frequency lists, communication to customer, skills & training and information management are prominent service provider codes and are positioned lower on the customer code frequency list. Through the frequency table it is evident that while 85% of customer descriptive codes and 76% of service provider descriptive codes occur in the top 30 customer codes listed, differences are evident not only between the customer and

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service provider sample groups, but also between subgroups within the research groups.

Significant differences evident in the customer subgroups, underground and surface, include a lower frequency of customer service, flexibility and verbal communication for underground customers, while the frequency of their relational, measurement, information and mine optimisation codes increased. Differences within the service provider sample groups included lower frequencies of flexibility, information management and mine optimisation focus for underground service providers, and higher frequencies for customer service, relationships and communication. On analysis of descriptive code families in Table 5 below it is evident that the most frequently occurring descriptive code families by customer focus area include:

1. Service culture - 185 family code occurrences
2. Mine performance - 131 family code occurrences
3. Communication - 104 family code occurrences
4. Relationship focus - 88 family code occurrences

While service culture, mine performance and relationship focus are prominent customer family codes, communication falls low in the table due to its prominence as a service provider family code. On comparison of combined descriptive code families surface customers were found to have a notably higher frequency of service culture codes, but exhibited a lower frequency of mine performance and relationship focus codes than the underground customer sample. Significantly, no continuous improvement codes were identified within the surface customer sample group. Underground customers to the contrary exhibited a lower occurrence of service culture codes, while exhibiting a higher occurrence of both mine performance and relationship focus codes.

Surface service providers were found to have a lower frequency of relational focus codes than customers and a moderate presence of continuous improvement codes while at the same time exhibiting a greater frequency of information and communication method codes. Service provider technical services personnel exhibited a similar family code distribution while reducing their emphasis on service culture and increasing emphasis on continuous improvement, skills and training and communication. The underground

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service provider sample, while similar to the surface service provider sample, exhibited a higher occurrence of relationship focus and continuous improvement codes but with a lower occurrence of information codes than the surface sample.

Table 5, Code frequency analysis of top 30 codes by code family

Code frequency by family group	Customer	Supplier	Surface Customer	Surface Supplier	Surface Technical	Underground Customer	Underground Supplier
Service Culture	24%	21%	39%	24%	13%	15%	22%
Mine Performance	23%	11%	15%	11%	10%	27%	13%
Relationship Focus	16%	9%	11%	7%	5%	19%	15%
Skills & Training	10%	10%	9%	10%	14%	10%	8%
Information	9%	12%	7%	14%	12%	11%	8%
Communication	7%	14%	8%	13%	17%	6%	14%
Communication Method	4%	9%	7%	10%	11%	3%	6%
Governance	4%	5%	4%	5%	7%	4%	4%
Continuous Improvement	4%	7%	0%	4%	10%	6%	10%

Source: Participant interview analysis
Code frequency analysis by code family and respondent type for the top 30 codes identified by the cumulative customer sample.

Following the frequency analysis of the descriptive codes and code families above, further analysis was undertaken on the co-occurrence of individual descriptive codes and the favourable attribute code through the use of co-occurrence tables. Through this method, greater understanding was obtained of key focus areas for both customers and service providers in the sales and service process to allow for the analysis of research questions I & II. Once focus areas had been determined for each of the sample groups, results were contrast with the perceived strengths and weakness of customer and service provider sample groups within research question III.

5.2.1. Results: RQ 1 - Focus of customers in value co-creation practices

Research question I: What service provider attributes and competencies are regarded by ***customers*** as the most important in the creation of value through routine business activities?

In order to allow insight into the focus areas of customers in routine operational practices, Table 6 illustrates the co-occurrence of the 30 most frequent customer descriptive codes

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with the favourable attribute code for customer focus. Of the 75 descriptive codes defined in the study the 30 most frequent descriptive codes as identified by the cumulative customer sample account for 85% of customer code occurrence.

Table 6, Customer weighting of descriptive code significance to value creation

Top 30 descriptive codes	Customer comment: Focus Area	Supplier comment: Focus Area
Customer service	11%	6%
Relational	10%	2%
Measurement	8%	5%
Customer coaching/training	7%	1%
Customer support/backup	7%	1%
Mine optimisation focus	6%	13%
Flexibility	6%	11%
Product application	5%	5%
Cost focus	4%	3%
Information reporting	4%	2%
Verbal/phone/skype	3%	2%
Product quality	3%	5%
Common purpose	3%	1%
Practical experience	3%	1%
Reliability	2%	10%
Proactive	2%	6%
Honesty	2%	3%
Skills & Training	2%	2%
BME Technical team	1%	3%
Communication - BME to Customer	1%	3%
No BME management interaction	1%	3%
Trust	1%	3%
Product development	1%	2%
Contract & KPIs	1%	1%
Arrogance v Respect	1%	0%
Information management/availability	1%	0%
Email	1%	1%
Capacity & competencies	1%	0%
Risk	1%	0%
Interaction - face to face	0%	2%

Source: Participant interview analysis
Customer weighting of descriptive code significance as identified through co-occurrence tables with the use of the favourable attribute code.

Through the co-occurrence analysis it is apparent that the top ten desirable descriptive codes by customer ranking account for 68% of favourable attributes within the top 30 descriptive codes (this represents 58% of favourable attributes from the total 75

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customer code types). The next ten codes account for 22% of favourable attributes (19% of total customer codes) while the last ten codes on the list account for only 10% of favourable attributes from the top 30 descriptive codes (9% of total customer codes). The top ten codes by customer significance are listed in Table 7 below together with their respective contribution to favourable customer attributes, while the combined family code weightings for the top ten descriptive codes are listed in Table 8.

Table 7, Top ten favourable descriptive codes by customer weighting

	Customer
Customer service	11%
Relational	10%
Measurement	8%
Customer coaching/training	7%
Customer support/backup	7%
Flexibility	6%
Mine optimisation focus	6%
Product application	5%
Cost focus	4%
Information reporting	4%
% Contribution of top 30 codes	68%

Source: Participant interview analysis
Top ten favourable descriptive codes based on customer weighting, as a percentage of the contribution to the top 30 descriptive codes identified in the research study.

Table 8, Top ten favourable descriptive codes by code family

	Customer
Mine performance	30%
Service culture	24%
Relationship focus	10%
Information	4%
% Contribution of top 30 codes	68%

Source: Participant interview analysis
Top ten favourable descriptive codes listed cumulatively by code family through customer weighting. Illustrated as a percentage of the top 30 descriptive codes identified by customers in through interviews.

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5.2.2. Results: RQ2 - Focus of suppliers in value co-creation practices

Research question II: What attributes and competencies do ***service providers*** believe are most important in the creation of customer value in routine business activities?

In order to allow insight into the focus areas of service providers in routine business practices Table 9 illustrates the co-occurrence of the 30 most frequent customer descriptive codes with the favourable attribute code for supplier focus. Cumulative customer code frequency was used as the ranking for this comparison given the absence of noteworthy outliers from the top 30 service provider codes, as well as the comparatively insignificant weighting of low order customer codes in customer decision making. Of the 75 descriptive codes created through the study, the 30 most frequent cumulative customer descriptive codes account for 76% of service provider code occurrence.

Through the co-occurrence analysis it is evident that while service codes differ in ranking, the top ten favourable descriptive codes by service provider ranking account similarly for 68% of favourable attributes of the top 30 descriptive codes (this represents 52% of favourable attributes from the total service provider code occurrence). The next ten codes account for a cumulative 25% of favourable attributes (19% of total service provider codes) while the last ten codes on the list account for only 6% of favourable attributes from the top 30 descriptive codes (5% of total service provider codes).

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Table 9, Service provider weighting of descriptive code significance

Top 30 descriptive codes	Customer comment: Focus Area	Supplier comment: Focus Area
Mine optimisation focus	6%	13%
Flexibility	6%	11%
Reliability	2%	10%
Customer service	11%	6%
Proactive	2%	6%
Measurement	8%	5%
Product application	5%	5%
Product quality	3%	5%
Cost focus	4%	3%
Honesty	2%	3%
BME Technical team	1%	3%
Communication - BME to Customer	1%	3%
No BME management interaction	1%	3%
Trust	1%	3%
Relational	10%	2%
Information reporting	4%	2%
Verbal/phone/skype	3%	2%
Skills & Training	2%	2%
Product development	1%	2%
Interaction - face to face	0%	2%
Customer coaching/training	7%	1%
Customer support/backup	7%	1%
Common purpose	3%	1%
Practical experience	3%	1%
Contract & KPIs	1%	1%
Email	1%	1%
Arrogance v Respect	1%	0%
Information management/availability	1%	0%
Capacity & competencies	1%	0%
Risk	1%	0%

Source: Participant interviews
Service provider weighting of the significance of the top 30 customer descriptive codes as identified through co-occurrence with the favourable attribute code.

The top ten codes by service provider significance are listed in Table 10 below together with their percentage contribution to combined supplier focus, while the combined code family rankings for the top ten descriptive codes is listed in Table 11.

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Table 10, Top ten favourable descriptive codes by service provider weighting

	Supplier
Mine optimisation focus	13%
Flexibility	11%
Reliability	10%
Customer service	6%
Proactive	6%
Measurement	5%
Product application	5%
Product quality	5%
Cost focus	3%
Honesty	3%
% Contribution of top 30 codes	68%

Source: Participant interviews
Top ten favourable descriptive codes by service provider weighting as a percentage of the contribution of the top 30 customer descriptive codes.

Table 11, Top ten favourable descriptive codes by code family for the service provider

	Supplier
Mine performance	32%
Service culture	33%
Relationship focus	3%
% Contribution of top 30 codes	68%

Source: Participant interviews
Top ten favourable descriptive codes by code family according to service provider weighting. Illustrated as a percentage of the contribution of the top 30 descriptive codes.

5.3. Results: RQ 3 - Alignment of customer and supplier focus areas

Research question III: What areas of alignment and misalignment can be identified between the customer and service provider in daily value co-creation practices, and through this understanding of customer focus areas is it possible for service providers to realign their operations to increase value co-creation practices and the subsequent value proposition to the customer.

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Table 12, Perceived strengths and weaknesses of top 30 favourable descriptive codes

Top 30 descriptive codes by customer weighting	Customer comment: Focus Area	Supplier comment: Focus Area	Customer comment: Strength	Supplier comment: Strength	Customer comment: Weakness
Customer service	11%	6%	18%	18%	3%
Relational	10%	2%	7%	12%	3%
Measurement	8%	5%	2%	0%	5%
Customer coaching/training	7%	1%	5%	1%	6%
Customer support/backup	7%	1%	8%	4%	2%
Mine optimisation focus	6%	13%	1%	4%	4%
Flexibility	6%	11%	12%	14%	3%
Product application	5%	5%	4%	1%	9%
Cost focus	4%	3%	3%	0%	0%
Information reporting	4%	2%	0%	0%	6%
Verbal/phone/skype	3%	2%	2%	0%	3%
Product quality	3%	5%	5%	10%	1%
Common purpose	3%	1%	5%	0%	0%
Practical experience	3%	1%	5%	3%	4%
Reliability	2%	10%	3%	8%	0%
Proactive	2%	6%	4%	4%	1%
Honesty	2%	3%	1%	0%	3%
Skills & Training	2%	2%	5%	5%	2%
BME Technical team	1%	3%	0%	4%	3%
Communication to customer	1%	3%	1%	3%	9%
No BME man. interaction	1%	3%	0%	0%	13%
Trust	1%	3%	0%	0%	0%
Product development	1%	2%	4%	5%	1%
Contract & KPIs	1%	1%	1%	0%	0%
Arrogance v Respect	1%	0%	1%	0%	0%
Information man./availability	1%	0%	3%	1%	4%
Email	1%	1%	0%	0%	2%
Capacity & competencies	1%	0%	0%	0%	8%
Risk	1%	0%	0%	0%	7%
Interaction - face to face	0%	2%	1%	1%	0%

Source: Participant interviews
Comparison of the perceived strengths and weaknesses of the top 30 favourable descriptive codes as a weighting of the top 30 codes by customer weighting.

In order to assess the degree to which service provider focus areas align with the needs of customers in routine business practices compares the focus areas of the customer and service provider sample groups together with the perceived areas of strength and weakness from both the customer and service provider perspective. Alignment of focus areas for customers and service providers is illustrated in Figure 3 while a cross analysis of strengths and weaknesses of the top 30 customer codes is illustrated in Figure 4

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below. Descriptive code rankings for both the top 10 and top 30 desirable focus areas were then analysed collectively according to their descriptive code families in order to assess the significance of each code family with regard to the focus areas of customers. Results for the comparison of family groups for the top 10 and top 30 descriptive code sets are displayed in Table 13.

5.3.1. Analysis of top ten customer focus codes

Following the exploration of research results for research questions I and II in sections 5.2.1 and 5.2.2 above, individual descriptive codes are now discussed with relevance to the service provider and customer sample groups such that the alignment of service provider and customer practices can be better understood.

Code 1 – Customer service (Descriptive code family: Service culture)

Through the results in Table 12 above it is evident that the attribute of greatest significance to customers in routine business operations is the level of customer service provided by the service provider. Customer service in the study is defined as the speed and willingness of the service provider to respond to customer requests within operational and administrative environments. While the highest ranked code for customers at 11% contribution, the code appeared only fourth through service provider analysis, with a contribution level of 6% for the top 30 codes.

From the study, it is evident that both customers and service providers perceived customer service to be the service provider's greatest area of strength in going beyond conventional supplier obligations and meeting the needs of the customer. Marginal weaknesses associated with customer service probed the depth of service culture across support departments in the service provider organisation, as well as the increased appetite for service provider risk in meeting the needs of the customer. Codes closely associated with customer service included flexibility, relational and customer support/backup. Further, customer service was identified as the mechanism that created value for customers through the application of tangible products. This was noted despite the product rich nature of supplier offerings. This was best illustrated by Customer B:

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"Ya, you selling a product but you selling more than a product. So the question is why do I buy it? I buy your product because you flipping sharp!" (Customer B)

So the quality of the person and the skill level, and the service that he can provide, is actually the selling point down the line, and the competitive advantage. Not the product. (Customer A)

Code 2 – Relational (Descriptive code family: Relationship orientation)

The code of second greatest significance to customers was that of relationships between customers and service providers. The relational factor accounted for 10% of desirable focus for top 30 desirable codes for customers while contributing only 2% of the top 30 desirable codes for service providers. Conversely, while service providers did not emphasise the importance of relationships to customers in meeting daily requirements, both customer and service provider participants identified relationships as the service provider's third greatest strength in meeting the needs of customers. Weaknesses associated with relational focus included an inadequate understanding of customer relationship importance in changing operational responsibilities, together with the failure of senior service provider managers to make regular visits on operations and build relationships.

Codes closely associated with the relational code included customer service, service provider communication to customers and information management/availability. Participants highlighted the role of relationships as a lubrication mechanism in the exchange and prioritisation of service functions and information gathering.

"if the Forman and Operation managers are not in the clients face and [don't] have a good relationship then you are going to struggle with getting that information" (Supplier E)

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Code 3 – Measurement (Descriptive code family: Mine performance)

The code of third greatest significance to customers was that of measurement. Measurement systems are essential for the benchmarking and monitoring of operational performance to allow mine management to target underperforming areas and in so doing allow for increased performance of the operation. Measurement contributes 8% of desirable focus for customers of the top 30 descriptive codes and 5% of desirable focus for service providers despite the very low frequency of occurrence of only 1% for measurement in the service provider sample group.

Customer perception of service provider measurement ability highlighted measurement as the sixth greatest weakness for the service provider while the service provider sample group took no notice of measurement as a weakness. Customer insight into measurement included the need for measurement as well as the development of measurement systems to allow for the monitoring and control of performance parameters on operations. Measurement is closely associated with the code information reporting as well as related attributes in the mine performance code family, including mine optimisation focus, customer coaching, product application and cost focus.

> *"I think it's important to have information available to manage or to measure the actuals so that you know what you want to [achieve], or what you should be getting and what you are actually getting"*
> *(Customer C)*

Code 4 – Customer coaching/training (Descriptive code family: Mine performance)

The attribute of fourth greatest significance to customers in routine operations is customer coaching/training. Customer coaching forms an important part of mine performance through the upskilling of mine personnel to use products and operational improvement tools to increase performance and understanding of the broader implications of operational practices on the value stream. While accounting for 7% of customer desirable focus areas of the top 30 codes, customer coaching accounted for only 1% of the service provider focus area.

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Through further analysis it is evident that customer coaching/training was identified as a weakness by service providers and was found to be the fourth weakest focus area within the study by customers. While the training of mine person was found to be a strength by customers within surface operations, it was identified as a weakness by both underground service providers and customers in the need for upskilling mine personnel. Customer coaching forms part of the mine performance code family and is closely associated with the codes measurement, customer support and skills & training.

"sometimes the client doesn't know what he wants, you need to coach the client, that's now where transferring knowledge comes in, but you have to coach him on; look, finer material doesn't always mean you will get the best result" (Supplier E)

Code 5 – Customer support/backup (Descriptive code family: Service culture)

Customer support was identified by customers as the fifth most significant attribute for customers in daily operations and includes all technical and operational backup for customer operations. Customer support accounts for 7% of desirable focus areas for customers from the top 30 codes and though emphasised by customers, was not emphasised by service providers accounting for only 1% of service provider focus areas. In line with these focus areas customers emphasised the service provider's strength in customer support to greater extent than the service provider sample group.

From the results it is evident that customers emphasised the need for customer support to a far greater extent than the code reliability, placing reliability as the 15th most desirable focus area. Service providers on the other hand emphasised customer support significantly less while ranking reliability as the third highest focus area in delivering value to customer operations. Through the study it is suggested that customer support as identified by the customer is recognized as reliability in the ability to successfully deliver products and support services through the eyes of the service provider. Similarly to the code customer support, reliability was considered a strength by both service providers and customers. As these codes both occur in the same code family, service culture, the apparent disparity cancels out through the code family analysis in Table 13.

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Customer support/backup is closely associated with product quality, customer service and customer coaching/backup.

> *"I've compared with a lot of our competitors. They don't have as many people in terms of operations. [Our] differentiator is the support, you know, the technical support, the operational support" (Supplier H)*

Code 6 – Mine optimisation focus (Descriptive code family: Mine performance)

Mine optimisation focus is the sixth most important focus area to customers in daily operations and includes advanced optimisation practices targeting improvements in the mine value chain. While accounting for only 6% of customer focus area, mine optimisation accounts for 13% of service provider focus area, the greatest focus area identified within the service provider sample group. On analysis of the data on Mine optimisation in Table 4 however, it is evident that while the mine optimisation code is most prevalent in the underground customer sample group, it is absent from the underground service provider sample group. Likewise, while the mine optimisation code is prevalent in the surface service provider sample group, it has a low frequency of occurrence in the surface customer sample group.

The results of this co-occurrence analysis are spurious owing to the skewed prevalence of senior managers and higher management distance from operation in the underground sample group when compared to senior on site operational managers in the surface customer sample group. It is evident from this however that the surface service provider data set exhibits a significantly greater frequency of mine optimisation factors than that of the underground service provider data set. This indicates that the weaknesses expressed by the customer sample group reflect dissatisfaction with the mine optimisation focus of the underground service provider group.

Mine optimisation focus is closely associated with codes within the mine performance family including measurement and product application as well as information management and information reporting.

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"Our focus is more on the guy on the drilling and blasting, because that is the guy we interact with on a day-to-day basis but we don't really fully understand what happens after blasting, and I feel like if we understood that process a bit better we wouldn't just be thinking of this guy that we dealing with on a day-to-day basis." (Supplier I)

"do we want a better quality of service, I don't think we have had that discussion, I think we just need to have that discussion, because [I'm not sure this is] serving our needs" (Customer B)

Code 7 – Flexibility (Descriptive code family: Service culture)

Flexibility was identified as the seventh most significant customer focus area in daily operations. While representing 6% of customer focus area within the top 30 codes, flexibility accounts for 11% of service provider focus area. As with mine optimisation however, discrepancies in the data sets for various sample groups are evident in Table 4. While flexibility features as a prominent code in both surface customer and service provider sample groups, little mention is made of flexibility with the underground customer and service provider sample groups. The absence of the flexibility code from the underground data set represents a 30% dilution of the flexibility code from surface data set that in turn would make flexibility the greatest focus area within the surface service provider sample group and third in the surface customer sample group.

Flexibility was identified as a considerable strength by both customers and service providers. Flexibility is closely associated with customer service and customer support through the ability to change arrangements to respond quickly to customer needs.

"If I call them and I need a product they go all the way to make sure that I do receive [the] product, even if it's short notice" (Customer G)

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Code 8 – Product application (Descriptive code family: Mine performance)

Product application is the eighth most important focal area identified by customers in routine operations accounting for 5% of both customer and service provider focus areas of the top 30 descriptive codes. While all customers and specifically surface service providers again provided notable comment on product application, underground service providers made no reference to product application in Table 4.

Further, it is evident through analysis that surface customers considered product application a strength within the surface environment. On the contrary, underground clients considered product application the second greatest area of weakness in routine operations. As this figure is highly diluted due to the presence of the surface data it is likely that product application represents the greatest area of weakness within underground service provider operations. Product application is broadly associated with a range of codes including mine optimisation focus, measurement, reliability, practical experience, skills and training and flexibility.

Surface quote:

> *"I think your trucks should be your main focus you know, perfect working condition, don't break down on the block and you know have proper mixtures" (Customer H)*

Underground quote:

> *"One of the issues that bother me is measurement of holes, on the long holes especially. It doesn't happen, it doesn't get recorded. So I believe the bulk of our problems [are] actually holes not being accurately drilled but then being charged and blasted anyway. (Customer A)*

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Code 9 – Cost focus (Descriptive code family: Mine performance)

Cost focus is the ninth most important focus area to customers in daily operations, accounting for 4% of customer focus and 3% of service provider focus of the top 30 descriptive codes. Cost focus is identified as a strength by customers with no mention of strength or weakness from service providers. Cost focus is closely associated with measurement, mine optimisation focus and customer service.

> *"we are looking at you because you are cheaper on your product ok, and that is why you would look at and try something new because there is a potential saving, but we are revenue sensitive, we are not cost sensitive. So at the end of the day it is about the quality of the blast rather than the cost." (CU1E)*

Code 10 – Information reporting (Descriptive code family: Information)

Information reporting is the tenth most important customer focus area representing 4% of the top 30 occurring customer codes when compared to 2% of representation for service provider focus areas. Both customers and service providers identified information reporting as a notable weakness in operations, with customers and service providers expressing the desire for improved communication systems for operational and technical information. Information reporting is closely associated with codes information management, communication to customer and measurement.

> *"we do certain reports for the mine and they don't reach certain people, and then you find that now there are complaints because certain people don't have access to that information" (Supplier H)*

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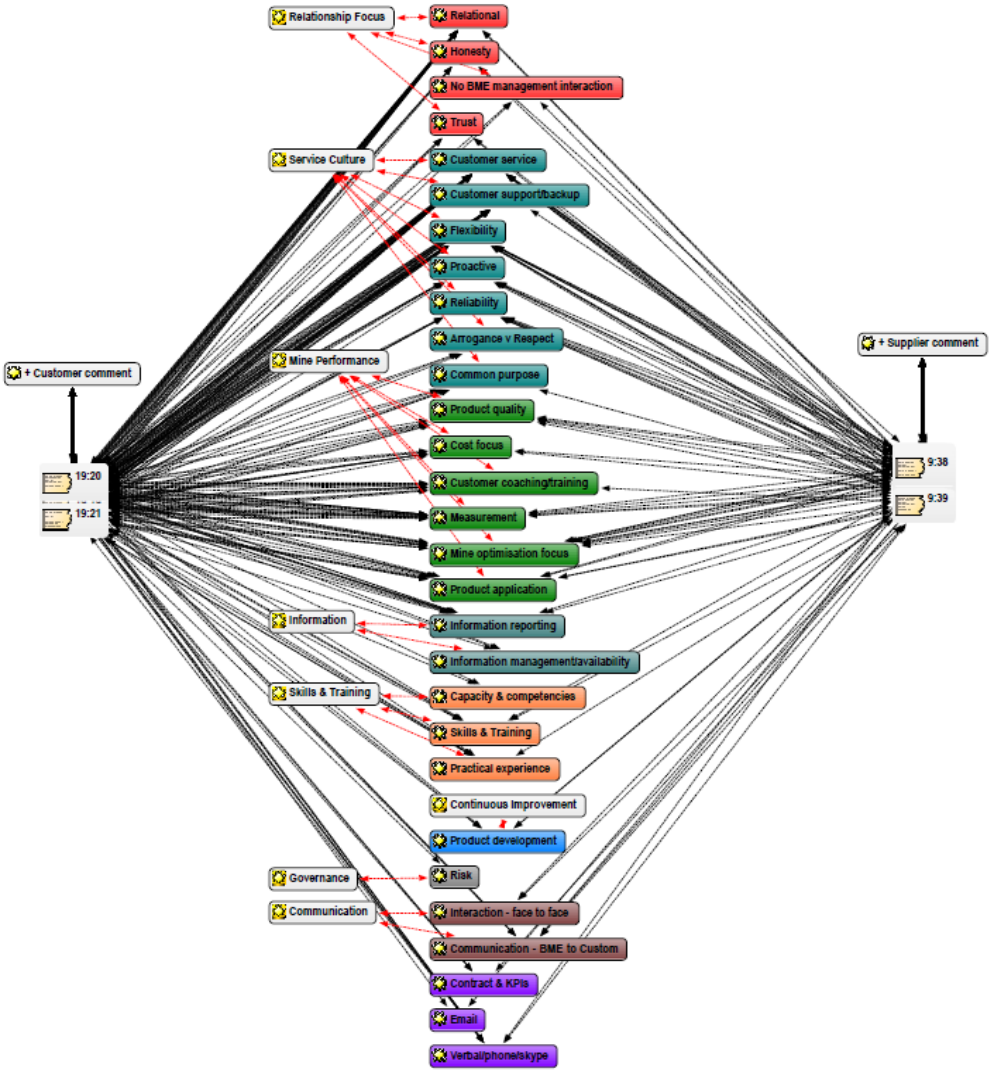
Figure 3, Comparison of supplier and customer focus areas - top 30 customer codes



Source: Participant interview analysis
Illustrative comparison of focus areas for the top 30 customer codes, through the co-occurrence of descriptive codes with customer and service provider favourable attribute codes.

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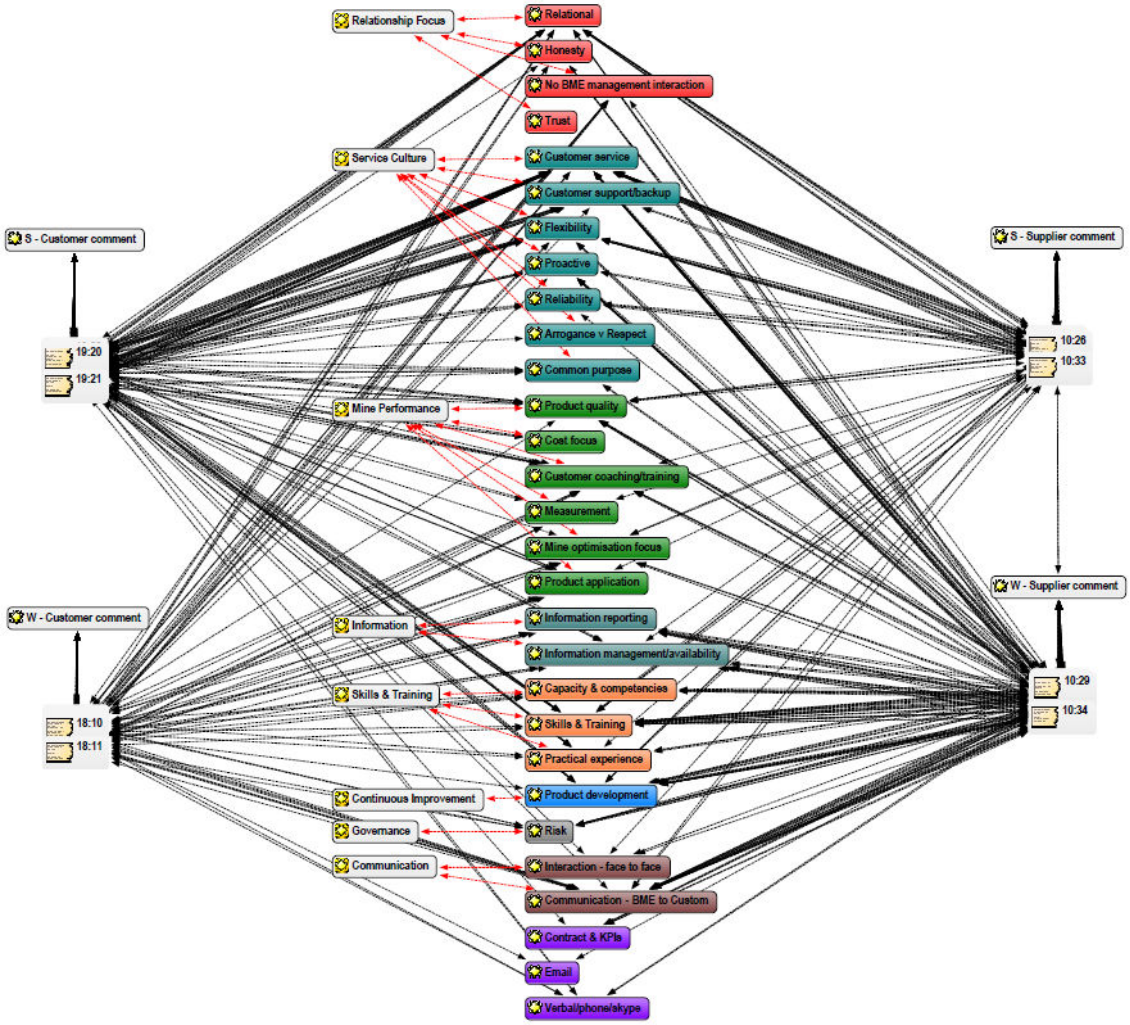
Figure 4, Comparison of perceived strengths and weaknesses - top 30 customer codes



Source: Participant interview analysis
Comparison of perceived strengths and weaknesses for the top 30 customer codes through the co-occurrence of descriptive codes and customer and service provider attribute codes for service provider strengths and weaknesses.

5.3.2. Analysis of customer focus areas by descriptive family code

In order to gain greater understanding of the distribution and prioritization of desirable data codes and code families as discussed above, family code groups are displayed in Table 13 below, first as the top ten customer codes and secondly as the top 30 customer codes.

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Table 13, Desirable descriptive codes by code family, percentage of the top 30 codes

Top 10 codes	Customer	Supplier
Mine performance	30%	28%
Service culture	24%	18%
Relationship focus	10%	2%
Information	4%	2%
Total	68%	50%

Top 30 codes	Customer	Supplier
Mine performance	34%	36%
Service culture	32%	35%
Relationship focus	14%	12%
Skills & training	6%	3%
Communication method	5%	6%
Information	5%	2%
Communication	1%	3%
Continuous improvement	1%	2%
Governance	1%	0%
Total	100%	100%

Source: Participant interviews
Table of desirable descriptive codes by code family, listed as a percentage of the top 30 customer codes list. First listed by top ten code set prior to being listed by top 30 code set.

Through categorization of the first ten codes in the table it is evident that the code family for mine performance represents the greatest focus area of customers, accounting for a combined weighting of 30% of customer focus for the top 30 codes. The family code service culture follows as the second most important code family with a combined weighting of 24%. Though the code families of relationship focus and information are represented in the top ten descriptive codes, they carry a weighting of only 10% and 4% respectively. Service provider focus for the above mentioned code families' falls in the same order accounting for 28% for the code family mine performance, 18% for service culture and 2% each for relationship focus and information.

When categorizing codes according to the top 30 customer desirable codes only minor changes are evident in the order of importance of code families. The code family for mine

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performance remains the most significant code family with a contribution of 34% of the top 30 codes. Service culture remains a close second with a contribution of 32% and relationship focus is of third greatest significance with a contribution of 14% of the top 30 codes. Together these three codes account for 80% of the focus area of customers for the top 30 codes in routine operations. Service provider focus within the customer top 30 codes differs only slightly with a contribution of 36% for mine performance, 35% for service culture and 12% for relationship focus.

5.4. Comparison of customer and service provider co-creation practices

Through this analysis it is evident that despite variances in the desirability of individual codes between customers and service providers, code families as represented above narrow the focus of customer and service provider family groups demonstrating general alignment in through code family analysis of focus areas. On thorough inspection of the data it is however apparent that variances in the sub-groups exist, demonstrating the need for dynamic value propositions and value co-creation processes to meet the different requirements of various customer subgroups.

*Alignment of service provider focus areas in meeting the needs of the **surface** customer subgroup:*

While surface service provider alignment with surface customer focus areas was found to be a strong both at a family code level as well as the individual code level, areas of misalignment are still present in the service provider value proposition. Key areas of alignment and strength in the offering include:

- customer service
- relationship intention
- customer coaching
- customer support/training
- operational flexibility
- product application
- mine optimisation focus
- & cost focus

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Areas of misalignment and weakness in the surface service provider value proposition include lack of awareness of the need for improved measurement systems on surface operations, as well as the absence of information reporting systems for management decisions. These needs were identified by customers exhibiting high management distance from business decisions making, as identified by work environment, and were closely associated with challenges in communication from service providers. Challenges regarding communication were commonly associated with technical support and reporting together with the failure to communicate to and manage the expectations of customers on site.

*Alignment of service provider focus areas in meeting the needs of the **underground** customer subgroup:*

While the surface service provider subgroup exhibited significant alignment with customer focus areas, the underground service provider subgroup exhibited a greater number of areas of misalignment with the customer. Areas of alignment between underground service providers and customers included:

- customer service
- relationship intention
- customer support/training
- & cost focus

- While operational flexibility was found to be a resounding area of focus and strength by surface operations, little if any mention was made of flexibility by underground customers and service providers.

Areas of misalignment between underground service providers and customers included the areas of measurement, customer coaching, mine optimisation focus, product application and information reporting. As with surface operations, underground service providers failed to identify the need for measurement and measurement systems as well as the need for information reporting for underground managers. Similarly these areas of weakness in the alignment of service provider and customer operations were identified by customers with greater management distance from daily operations.

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One area of significant misalignment and weakness between underground service providers and customers was identified in product application. While regarded as a strength by surface customers, underground customers identified the need for greater focus, control and measurement during the application of products in order to improve the substandard practices of underground personnel. This area of misalignment was further exacerbated by the underground service provider's weakness in customer coaching. While identified as a strength in surface operations, customer coaching was identified by underground customers as an important area for the improved performance of customer operations through training and awareness. Communication challenges present in the service provider organisation resulted in the failure of the service provider to act on the request. The final significant area of misalignment between the underground service provider and customer focus areas lies in mine optimisation focus. While representing an area of significant interest for customers, underground service providers failed to highlight the need to identify and manage the system effects introduced through service provider products in order to improve value creation for the customer.

From the study it is evident that while requiring similar products and services, the change brought about through the shift from surface to underground operations influences not only the products required, but also the nature of the key focus areas and the value proposition required by the customer. In the analysis of data, no significant correlation was identified in Table 2 between formal qualification level or length of experience. One area that did appear to correlate was the management distance of participants from the operational environment. Participants in central office positions further from the operational environment appeared to exhibit greater system focus, with increased emphasis on measurement and codes within the mine optimisation code family. While management distance is associated with management level, not all senior managers were found to exhibit equal system focus.

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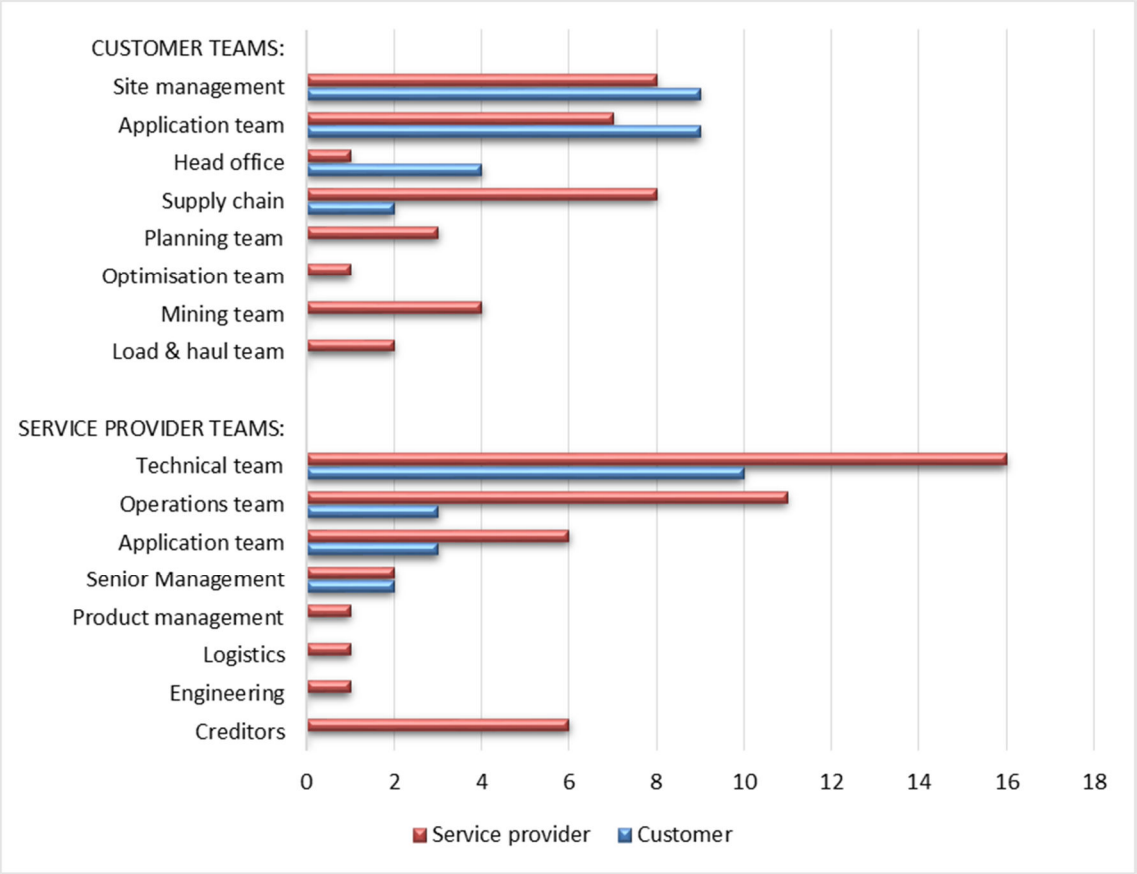
5.5. Empirical analysis service provider and customer interactions

As the identification of opportunities for value co-creation practices are a function of the interaction of service providers and customers (Lombardo & Cabiddu, 2016), it is important to understand the empirical interactions of service providers in the operational environment. Figure 5 illustrates the interaction of service provides and customers as identified through the frequency of occurrence for attribute codes for each of the interactive service provider and customer teams identified through interviews.

Figure 5, Frequency analysis of interaction as cited between supplier and customer



Source: Participant interviews
Illustration of frequency analysis for the interaction of service provider and customer participants as cited, coded through emergent coding in the interview process.

Through Figure 5 it is evident that teams within the customer organisation that were routinely cited for interaction include onsite management and application teams, together with head office and supply chain teams. Service provider teams cited for routine

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interaction similarly included operations management and applications teams, together with technical support teams, senior management and creditors. Through this comparison it is evident that communication between the service provider and customer is predominantly undertaken by front line personnel from the two organisations with limited if any interaction from support functions. A further weakness cited in interviews was the lack of interaction from service provider management with the customer.

> *"Some other companies are very professional and they go to [meetings] with everything they've got, being the MD and very senior executive level personnel. . . Not to say they have the answers, but it does show the commitment and . . . the seriousness [with which] that company takes the client." (Customer C)*

Through interviews, service providers and customers noted the three most prominent communication codes in the study as communication to the customer, communication within the service provider organisation, and marketing communication. Similarly both service provider and customer participants identified these three areas as areas of weakness for the service provider as described by Supplier B below:

> *"So if I don't get product and I have to tell the client. My first reaction is the transporter had a problem. And then I phone the transporter and I find out oh-crap [sic], the plant had a problem according to the transporter. Then I phone the plant and the plant say no wait, we didn't receive product from the other plant. Then you find out that the other plant is on breakdown. But you only find that out when the product [doesn't] get delivered to your site. The plant went on breakdown three weeks, not yesterday." (Supplier B)*

Figure 6 below illustrates the frequency of occurrence of emergent communication method codes as identified through service provider and customer interviews. It is evident through the illustration that the dominant communication method cited between service providers is telephonic communication, followed by email, face to face interaction

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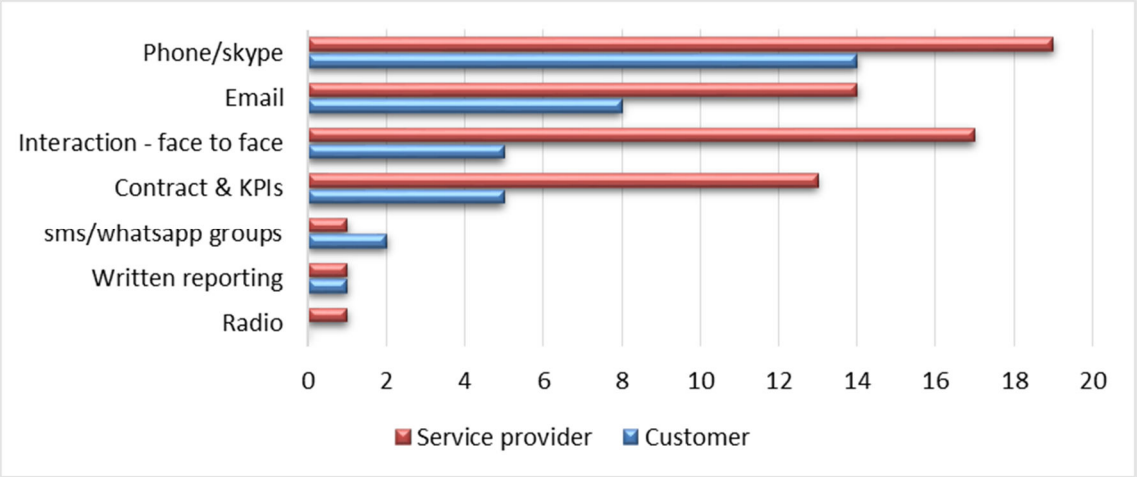
and formal agreements.

Figure 6, Frequency analysis of methods of communication as cited in interviews



Source: Participant interviews
Illustration of frequency analysis for the code family methods of communication as cited in customer interviews.

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6. Discussion

Following the analysis of research results for research questions I and II in section 5 above, the following section suggests insight into research question III through the application of theory to the findings of research questions I and II.

6.1. Customer individualism

Applying the foundational premise, that 'value is always uniquely and phenomenologically determined by the beneficiary' (Vargo & Lusch, 2008), it is essential to understand the requirements of individual customers in order to place the individual customer experience at the centre of the value proposition (Farr, 2015). Through the discussion of results in chapter 5 it is evident that despite operating within a single industry a range of customer focus areas are present in the customer sample group. Each with their own specific operational requirements and preferences.

In order to correctly position the value proposition for each customer the need exists to identify the focus areas of individual customers in order to propose a value proposition that meets the unique requirements of each individual customer (Vargo & Lusch, 2008; Lombardo & Cabiddu, 2016). This was corroborated by the service provider sample group who recognised the unique requirements of each customer and the need to engage with customers in order to determine the focus areas and value proposition that aligns with their individual requirements. The creation of this value proposition is vital owing to the seventh fundamental premise of S-D logic in that 'the enterprise cannot deliver value, but only offer value propositions' (Vargo & Lusch, 2008) that allow for the generation of value through customer interaction.

> *"Every client is different. Some clients have a good understanding of our product and has been using it for many years. Some clients are new, some clients comes from other Industries and they just trying out blasting, so they don't have a lot of knowledge." (Supplier B)*

The findings of the service provider sample group further supported the findings of

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Lombardo and Cabiddu (2016) who suggested that the interaction and integration of resources is not only influential to the dyadic problem solving process through value-in-use, but are equally important to problem identification. While corroborated by the service provider, customers failed to explicitly identify the need for the integration of resources in problem identification.

> *"It depends on the customers' needs and you need to actually interact with customer to understand what, what [are] their needs. Do they need to have technical assistance or normal practical [assistance], where just the difference between suppliers can create quite a problem because our competitors don't use the same density products" (Supplier B)*

6.2. Value perception by the customer

As described through the seventh fundamental premise of S-D logic described above, that 'the enterprise cannot deliver value, but only offer value propositions' (Vargo & Lusch, 2008), it follows that value can no longer be embedded within a product and recovered through discrete transactions. Rather, value co-creation is an integrated process that takes place over time, with each stage of the service process acting as a stage in the value creation experience (Giesbrecht, Schwabe, & Schenk, 2017; Grönroos, 2012; Vargo & Lusch, 2008; Lenka et al., 2017).

Further, it is evident through the varying focus areas of customers that despite the common industry in which the service provider operates, varying focus areas exist within the customer sample group. As a result, both the number and sequencing of stages in value co-creation change as well as the relative weighting of importance in determining the value perceived by the customer. This is evident in the comparison of operations where mine optimisation and system focus are regarded as key focus areas for large operations with disconnected management teams, while service culture and flexibility form the focus areas for smaller operations and direct management teams with emphasis on the production schedule.

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Small operation with direct management:

> *"I think it would just [be] to focus on making sure that the rock we need [is] on the ground when we need it" (Customer I)*

Large operation with disconnected management team:

> *"We are looking at you because you are cheaper on your product ok, and that is why you would look at and try something new because there is a potential saving, but we are revenue sensitive, we are not cost sensitive. So at the end of the day it is about the quality of the blast rather than the cost. So it doesn't help if I pay two thousand or three thousand rand less per ton of explosive, it should be the cost per ton of ground on the floor, blasted. That is what should be measured." (Customer A)*

These examples illustrate the move of the service provider away from value-in-exchange or the G-D theory of embedded value and discrete transactions toward S-D theory or value-in-use. Also evident through these examples is the role of tangible goods as a mechanism for service provision (Vargo & Lusch, 2004). As described by the service provider sample group, tangible goods are regarded as only an input into the value creation process that can be applied and supported through a range of support services to meet the needs of customers in a range of customer focus areas, this depending on individual customer focus areas.

Through the fundamental principles of S-D logic, interaction and service encounters form the locus of value creation for the customer playing an important role in the value creation process (Giesbrecht et al., 2017; Kohtamäki & Rajala, 2016; Grönroos & Voima, 2013; Vargo & Lusch, 2008). While a customer's predisposition to service variables and individual customer needs may play a significant role in value perception by customers (Aarikka-Stenroos & Jaakkola, 2012), unfulfilled expectations through the interaction process can undermine the customers perception of value leading to customer dissatisfaction (Preikschas et al., 2017).

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Through the study it is evident that due to the high internal and external expectations of customer service within the service provider organisation, both customer and service provider sample groups cited overpromising as a problem brought about through the need to impress the customer. This illustrates that while customer service remains a defining characteristic and strength of the service providers' organisation, it can also act as a weakness that is able to undermine trust in the organisation due to unfulfilled expectations. This was expressed by Customer C in the failure of the service provider to deliver on agreed technical service levels as well as in the delivery of technical capacity and new products to meet commitments.

Customer comment:

> *"From my point of view and my experience, the sales people will tell you exactly what you want to hear and they will promise you anything which the technical guy isn't even aware of. And I mean I have experienced that." (Customer C)*

Service provider comment

> *"Because we are so quick to respond and we want to be agile, there is a lot of things where I feel like we make mistakes and we commit to things that we are not able to provide" (Supplier I)*

Further challenges cited by service provider participants regarding the high expectation of service culture practiced in delivering on customer expectations included the openness of the service system to abuse by the customer. While customers noted the value that this support provided, some customer participants suggested that these support services should not be charged for and should be included in the services offering. Instances of abuse included the delegation of customer responsibilities to service provider employees leading to the blurring of responsibilities between parties, impacting the ability of the service provider to deliver on its primary responsibilities. Repetition of technical work was also identified as a challenge given the failure of customer to implement corrective action on previous reports. Service providers' participants further commented on the increased risk appetite present in service provider personnel in meeting the needs of customers, including the abuse of overtime and

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propensity to short cut in procedures. This increased risk appetite detracted from the overall perceived value due to the risk of detrimental effects to the operation.

> *"The guys worked a hell of a lot of overtime without sleeping and all those things, just to satisfy the client, and by doing such actually endangering themselves and the other people" (Customer C)*

6.3. Dynamic capabilities

Dynamic capabilities describe a service provider's ability to adapt their value propositions and business processes to meet the varying needs of individual customers. In this way it is possible for service providers to structure their service offerings to facilitate the creation of maximum value in the areas of greatest significance to the customer (Preikschas et al., 2017). By sensing and adapting to the varying needs of individual customers it is possible for service providers to customise their value proposition for maximum impact while continuing to meet the needs of the broader group of customers.

As identified by the customer and service provider sample groups, operational flexibility forms an integral component in the service provider service offering to surface operations and is regarded as a considerable strength in the service provider organisation. Through the use flexibility in the business model, service provider participants described the ability of the organisation to adjust their value proposition between large and small customers by working with customers in an attempt to focus on areas of greatest significance to individual operations. As found by Preikschas et al. (2017), this process of interaction and value creation enhanced a company's dynamic capabilities with regard to the adaption of processes to meet customer needs.

> *"[The] fact that we are so flexible we can, we can really, change our planning, we can change a lot of things in a short amount of time" (Supplier B)*

In order to act on the service provider's dynamic capabilities in the field, service provider participants noted the requirement for surplus operating capacity in services equipment

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and technical personnel to meet fluctuating demand for varying services from individual customers. It was noted however, that the need for surplus capacity was in conflict with asset utilisation efficiency in the service provider's organisation and this in turn negatively influenced direct return on investment. Product attributes including the robustness of product were also found to influence the dynamic capabilities of the service provider allowing for increased flexibility throughout service systems and in the application of product-service systems in extreme operating environments.

A second factor of significance in the application of dynamic capabilities in the field is the need to make decisions quickly within operations in order to customise services to allow for maximum value creation with the customer. In order to achieve this, service provider participants noted the use of decentralised decision making structures, allowing decisions to be made without the need for prior approval from executive management. While not identified by customers, this attribute was identified across the service provider sample group as an important factor in the creation of value for customers through the high service and flexible organisational processes.

"I would say what was added a lot of value for us was the fact that we were allowed to take decisions there and then" (Supplier F)

Service provider participants further noted the fast response rate to customers, short time for the mobilisation of new operations and the ability to act quickly and learn from mistakes as significant contributors to the success of service provider operations.

"Looking at the overall picture, I think [operations are having] a massive impact to the customers, [because] we're quick to react and we can get extra trucks and extra people and we can mobilize very quickly to do new business. So I think that is a positive side from them" (Supplier J)

While the value creation process with the customer enhanced dynamic capabilities within the organisation, service provider participants noted the inadequacy of planning capabilities in the organisation. This deficiency led to challenges in achieving the

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completion of projects and deliveries on time and in full. It is plausible that due to ability of the service provider employees to act quickly in the implementation of corrective action, negative impacts on a customer can be effectively mitigated. It was noted by service providers that this in turn led to decreased efficiency of operations while increasing customer value.

> *"If there was, you know the mines make a mistake and they didn't order enough or they forget to order, you can within half an hour organise a truck and you can deliver the same day for them and then they don't lose any production." (Supplier F)*

While Preikschas et al. (2017) noted an increase in knowledge and innovation activities through the adoption of value co-creation practices, this finding was only partially consistent with the findings of this study. Through interaction and individual customer knowledge, service provider participants focused their value creation activities in the areas identified as of greatest significance to individual customers. This led to increased customer satisfaction and retention of customers provided focus areas between the service provider and customer were in alignment.

> *"I haven't had problems. We sorted out the problems when I got here and [quickly], so there was no reason for me to look outside. So we wouldn't know the services of the other company. We are used to the company and they give us good service at this stage" (Customer E)*

Despite understanding the needs of the customer and noting the requirement for innovative technologies, service provider participants noted the slow reaction of the service provider organisation to the needs of the customer in the field of innovation and innovation support. Through the study, service provider participants suggested possible reasons for the slow response and implementation of new technologies including the failure of executive management to understand the value of innovation to the business, a failure to prioritise the development of new innovations, and the failure of service provider onsite teams to embrace new technology.

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"Of great concern, is we are stagnant. In terms of diversification, in terms of technology, in terms of innovation, we are way behind other companies" (S7US)

6.4. Support for value co-creation in operations

In addition to the availability of resources and capable products, service provider participants noted the need for both technical and management competency and capacity in meeting the needs of customers. As described by Vargo & Lusch (2008), operant resources have now become the fundamental sources of competitive advantage, through which service processes and value co-creation activities are administered on customer operations.

So the quality of the person and the skill level, and the service that he can provide, is actually the selling point down the line, and the competitive advantage. Not the product." (Customer A)

Through the study the service provider sample group identified multiple attributes or traits highlighted by Ulaga & Loveland (2014) as significant in the successful implementation of service dominant business strategies. Of the seven most significant attributes identified in the study common areas present in the areas of customer service, learning orientation of the workforce, team work and intrinsic motivation. While the surface customer sample found the training of service provider personnel to be acceptable, service provider participants identified the need for upskilling of site management teams in the areas of communication, information management and general management abilities as the custodians of customer operations on site. This is in line with the areas highlighted by Ulaga and Loveland as mentioned above. Further, significant emphasis was placed on the need for practical training and experience, emphasising the back to basics approach to service provision.

"The foreman and the Ops managers. They the ears and eyes and the soul of a company at the customer and we need to give them the

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tools and the training and the skills to interact and to make certain decisions without waiting for group or anybody else. But if even do not have the skills they won't ask the right questions." (Supplier J)

6.5. Value co-creation with the customer

Insight gained through previous studies by various researchers have shown that value co-creation and S-D logic theories agree that customer value emerges over time and as a function of firm and customer interaction (Frow, Payne, Wilkinson, & Young, 2011; Grönroos, 2012; Vargo & Lusch, 2008; Lenka et al., 2017). This value in turn emerges through social and economic value co-creation processes as the difference between value-in-use less the required sacrifice (Aarikka-Stenroos & Jaakkola, 2012). Through the study both customers and service providers highlighted mine optimisation as the greatest focus area in the delivery of value in routine business operations, while service culture was rated a close second in the creation of customer value. Though not mutually exclusive, the customer sample group exhibited a largely polarised view of value creation weighted to either service culture or mine optimisation focus. The preference of focus areas was correlated with the management distance of customers from their specific operations.

Through this view it is evident that value co-creation is not only the difference between value-in-use and required sacrifice, but rather value co-creation represents the difference between value-in-use less the sacrifice of the best alternate possible outcome through interaction between the customer and the service provider. In this way customer specific knowledge and customer coaching by the service provider are fundamental to the value co-creation process with the customer in order to bring to the customers attention areas of significance specific to individual operations. Customer B noted however that these attributes alone would be insufficient to provide comprehensive insight for decision making without first being supported through the specific identification of measurements, costing mechanisms and information reporting systems for active decision making during the value co-creation process.

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"So there is a lot of data, there is a shit load [sic] full of data. And from the data you can get info. But selecting the right data and putting it into a format that it is actually information . . . and put it into perspective, so how do I do that?" (Customer B)

As highlighted by Echeverri & Skalen (2011) and Grönroos (2012), it is important to recognise that customers can become either better off or worse off through value co-creation and 'value-in-use'. This is possible should service provider-customer partnerships allow for decisions that lead to the net destruction of value. This destruction of value can be brought about through detrimental system effects negatively impacting adjacent factors within customer operations. One such occurrence was described by Supplier D with regard to an instance of product quality complaints leading to destruction of value for the customer. In an attempt to offset negative system effects brought about through underperformance of the product, service provider participants recognised the ability to compensate for underperforming attributes in the service process by compensating through alternate areas of focus including relationships, customer coaching and customer service. While this practice is able to support the customer relationship temporarily, service provider participants noted that it was not sustainable and resulted in a notable loss in customer satisfaction if not addressed.

"Our guys are on the mine and doing the job when we have cut-offs, misfires, out of sequence firing, that kind of thing it's covered up and no one knows about it. They don't know about ninety per cent of what's happening . . it's going to come back and bite us." (Supplier D)

6.6. The role of relationships in value co-creation

It is evident through the research above that relationships play a significant role to the value co-creation process and are considered vital by both customers and service providers. While service provider participants identified the importance of relationships as a cushioning mechanism for day to day operational challenges and in the access to new business opportunities, customers identified the need for relationships as a

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leveraging mechanism to gain preferential access to services and customer specific support.

In this way relationships act as lubrication mechanism that facilitates the value co-creation process, aligning the objectives of the team behind a common purpose, improving communication and access to information for mine optimisation. These finding support research by Chan et al. (2010) who found that successful service processes depend on both organisational and personal relationships within dyadic business processes. Further, they support the research by Rapaccini (2015) who demonstrated that the benefits of S-D systems included higher satisfaction levels and longer term relationships.

"Yea, it's a necessity that your product should work and then the rest is depending on individuals, having a relationship. That's how I see it" (Customer B)

Another consideration identified through the study was the importance of trust in the customer service provider relationships. Service provider participants emphasised the need for trust from both the customer and service provider in the maintenance of relationships, highlighting the importance of trust in routine interactions and communication for the benefit of the value co-creation process. Customer participants raised concerns regarding the ability to trust communication from the service provider regarding product challenges, as well as information generated through their own operations on which they were required to make decisions.

"If we had a decent trust worthy report to say this is for instance one, [holding up a report] the development stats. Now this is not right because, I don't trust the figures, manual input, but if this was a hands free." (Customer B)

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6.7. Role of organisational design in value co-creation

As previously highlighted, in order for service providers to identify opportunities for the co-creation of value with individual customers, the need exists for the service provider to first identify the areas of significance to individual customer operations (Vargo & Lusch, 2008; Lombardo & Cabiddu, 2016). This is possible through the interaction of operant resources within the customer organisation for the identification of such opportunities (Vargo & Lusch, 2008).

Through this research it is suggested that the identification of opportunities for the co-creation of value represents only the beginning of the value co-creation process, while the final product of the value creation process depends on the facilitation processes of service provider support functions within the provider sphere (Grönroos & Voima, 2013). As a result, the process of value creation depends on the effective internal communication of the service provider with the needs of the customer. Through effective internal communication, support functions within the service provider can align their activities within the provider sphere to allow for the optimal realisation of value in the adjacent customer sphere (Grönroos & Voima, 2013). It therefore follows that should the service provider be unable to align their internal support functions to meet the focus areas of customers as identified by customer facing employees, the subsequent misalignment of internal functions will inhibit possible value co-creation processes in the customer sphere.

Through the research findings, and illustrated in Figure 5, it was identified that the predominant forms of interaction that take place between service provider and customer teams do so through front line teams from both organisations. Through this finding it is evident that in order for the service provider to align its value creation process to meet those of the customer, effective communication is necessary between customer facing teams and support teams within the organisation. Given the considerable weaknesses highlighted in Section 5.5 both thematically and through individual descriptive codes for both internal communication and communication with the customer, questions are raised as to the alignment of service provider support functions in facilitating optimal value co-creation for the customer. This is illustrated through the adaption of Grönroos & Voima's (2013) sphere model for the interaction of service providers and customers in value co-creation activities.

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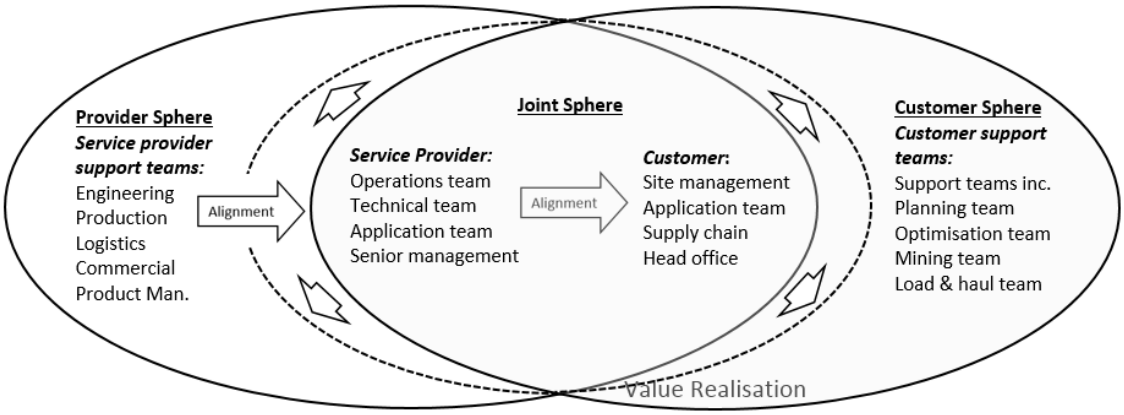
Figure 7, Adapted situational sphere model for service provision to the customer



Source: Grönroos & Voima, 2013
Adapted situational sphere model depicting the interaction of service provider and customer teams through the value creation process. The model has been adapted to illustrate the position of existing functions within the three spheres.

As described earlier in Figure 5, Figure 7 above illustrates the departments within the service provider and customer organisations that are perceived by the customer to interact routinely in the creation of value. These participants in the value creation process are depicted in the joint sphere in which integration of operant resources exists for the realization of value (Grönroos & Voima, 2013; Vargo & Lusch, 2008). Departments suggested by the service provider but not customer as well as departments with the unnamed support functions are depicted adjacent to the joint sphere in either the Provider sphere or Customer sphere where no interaction takes place. For the maximum co-creation of value to take place it is suggested that the joint sphere be enlarged through greater involvement of support functions from both service providers and customers, such that increased alignment can be achieved from support functions through the integration of customer and service provider knowledge for the identification of value creation opportunities. Further, through the involvement of customers in product innovation and development, historical research has demonstrated a significant to customer wellbeing (Marcos-Cuevas, Nätti, Palo, & Baumann, 2016; Preikschas et al., 2017)

A second method of improving the alignment of support functions with customer focus areas is through improved communication systems between service providers in the joint

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sphere and support functions in the provider sphere. Improved communication systems would in turn allow for a faster response to changing focus areas within the customer population. This would allow support functions to better adapt to meet the changing requirements of front line population subgroups in meeting the needs of customers. In order to allow for the co-creation of value through varying front line subgroups, it is therefore necessary for the support services to similarly exhibit dynamic capabilities such that optimal value creation can be facilitated through each subgroup (Preikschas et al., 2017).

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7. Conclusion

7.1. Principal findings

In order to remain competitive in a rapidly changing world of information ubiquity it is no longer possible to rely on traditional transactional marketing models rooted in traditional economic theory. As described by Vargo & Lusch (2004) and discussed through this research, the need to remain competitive in the market place has driven firms from goods-dominant strategies focused on tangible resources, embedded value and discrete transactions, toward service-dominant strategies focused on intangible resources, relationships and the co-creation of value (Vargo & Lusch, 2004; Vargo & Lusch, 2008). Through the adoption of value co-creation practices, service providers develop intangible sources of competitive advantage through operant resources in order to meet the evolving needs and expectations of customers in an increasingly competitive and price sensitive environment.

With the fundamental principle of S-D logic evident in the need to understand value from the customer's perspective (Kuijken, Gemser, & Wijnberg, 2016; Farr, 2016; Vargo & Lusch, 2004), it is necessary to interpret the unique requirements of each individual customer for optimal value creation (Vargo & Lusch, 2008; Lombardo & Cabiddu, 2016). In order to achieve this, value co-creation theory embraces integration of resources (Lombardo and Cabiddu, 2016) and interaction through the service encounter as the locus of value creation (Giesbrecht, Schwabe, & Schenk, 2017). As highlighted through this study, the ability of the service provider to identify and provide differentiated customer offerings aligned to individual customer needs has allowed the service provider to increase levels of satisfaction experienced by the customer. This in turn leading to long term relationships and increased barriers to competition as originally described by Rapaccini (2015).

Through this research study, factors identified to be of greatest significance to industrial customer in the mining environment included factors within the mine performance focus, service culture and relationship focus code families. Together these three code families accounted for 80% of favourable attributes within the top 30 codes identified by the customer, while representing 83% of favourable attributes as identified by the service

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provider. Significant emergent individual codes identified through the study included customer service, relational focus, measurement, customer coaching, customer support, mine optimisation focus, flexibility and product application, with the top ten favourable attributes defined by the customer accounting for 68% of favourable attributes. Service provider weighting for the same top ten codes accounted for 50% of favourable attribute codes.

Despite the high level of alignment apparent through the thematic analysis of interview results, differences were however evident in focus areas for various subgroups within the populations. This is shown in the significantly reduced weighting of flexibility in the underground subgroup when compared to the surface subgroup. Further, not all subgroups within the population achieved the same level of alignment between service provider and customer. Through the analysis of participant attributes that emerged through interviews, only one suggested correlation was identified with regard to focus areas of customers. While not all senior managers exhibited increased attention to system focus and mine improvement factors, all participants who exhibited a greater management distance from operational decisions (as recognised through work environment) exhibited greater attention to system focus and mine performance factors.

Through the research study, service provider participants highlighted the need for increased training of front line personnel in order for them to participate more effectively in value co-creation activities with the customer in the joint sphere (Grönroos & Voima, 2013). Personality traits as identified by Ulaga & Loveland (2014) in the services dominant workforce are supported through the findings of the research with focus identified in the areas of customer service, learning orientation, team work and intrinsic motivation.

Despite high customer satisfaction levels achieved through customer service, one notable challenge brought on through the high service culture included over commitment by customer facing teams. In overpromising, the customer commented that the service provider created unfulfilled expectations that as discussed by Preikschas et al. (2017) undermine the customer's perception of value thereby leading to customer dissatisfaction. Further challenges brought about through value co-creation activities and the high service culture of the service provider included incorrect use/abuse of service

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provider resources, a blurring of customer service provider responsibilities impacting the service provider's ability to deliver on expectations and an increased appetite for service provider risk in satisfying the customer.

In line with the findings of Vargo & Lusch (2004), this research further highlights the role of tangible goods as an input into the value co-creation process, representing only the potential for value creation through service provision. Through the study, customers assessed the quality of the service provider through the output of the service process and not through the quality of input materials. In the shift from a G-D offering to an S-D offering, product quality is no longer the challenge of the customer, but rather a challenge to the service provider in delivering consistent, quality results through provision of the service.

A key finding of this research is the range of focus areas that exists between companies and between individuals within companies despite the simple structure of operations within the industry. In order to allow service providers to operate effectively within the environment it is therefore necessary that companies develop dynamic capabilities (Preikschas et al., 2017) such that they are able to adapt their service offerings to facilitate the creation of maximum value in the areas of greatest significance to individual customers. In this way it is possible for service providers to alter both the number and sequencing of stages in the value co-creation process, as well as the relative weighting of each stage within the process based on the perceived level of importance by the customer.

In order to facilitate such dynamic capabilities, service providers highlighted the need for excess technical and service capacity to meet the fluctuating demand and focus on service provision by customers. Product attributes including product stability were also found to influence dynamic capabilities by allowing increased flexibility through the application of product-service systems under extreme operating conditions. Finally the service provider sample highlighted the importance of decentralised decision making structures in empowering employees to act quickly to embrace opportunities for value co-creation with customers in the field.

While decentralised decision structures allow for faster mobilisation of new operations

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and were considered a significant contributor to the success of service provider operations, it increased the risk appetite within the organisation and allowed service provider personnel to learn by making and correcting mistakes in the field. Through research Preikschas et al. (2017) found that co-creation practices enhanced a company's dynamic capabilities in its operations, suggesting that the presence of dynamic capabilities equally enhances a company's ability to identify and act on opportunities for value co-creation as suggested by Lombardo and Cabiddu, (2016).

Findings of this study further support the findings of Chan et al. (2010), who highlighted the importance of relationships in the successful execution of service processes within the dyad. While beneficial to service providers and customers for different reasons, relationships were described as a lubrication mechanism allowing for improved communication and greater access to information for value creation processes. It was further suggested that trust between service providers and customers was vital to achieving common purpose in the execution of value co-creation activities.

7.2. Management implications

As identified through this research, value co-creation represents not only the difference between value-in-use and required sacrifice as suggested by Aarikka-Stenroos & Jaakkola (2012), but rather the difference between value-in-use less the sacrifice of the best possible alternate outcome through interaction between the customer and the service provider. This understanding of value co-creation places greater pressure on service providers to educate and coach the customer such that optimal value creation can take place through routine interactions.

While the coaching of customers forms an important role of the service provider, it was further noted by customers that this alone would be insufficient to provide comprehensive insight for decision making without being supported through identification of specific measurements, costing mechanisms and information reporting systems for active decision making during the value co-creation process. It is further suggested through this research that cognisance be given to the focus areas of individual customers as well as the management distance of customers for the purposes of interaction and communication.

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Through analysis of the interactions of the customer and service provider, it is apparent that need identification and communication throughout the service provider organisation present a challenge to meeting the needs of varying customer subgroups. This is evident through low levels of communication identified between front line customer facing employees and support functions, as well as through the absence of interaction between service provider support departments and the customer within the joint sphere (Grönroos & Voima, 2013).

In order to align the focus areas of support functions with those of the customer, as identified by front line personnel, it is necessary to increase communication throughout the organisation, as well as the level of interaction of support functions within the joint sphere. In increasing the knowledge base of the joint sphere through the interaction of support functions it is in turn possible to increase the identification of value creation opportunities for the customer (Lombardo & Cabiddu, 2016). As proposed by Preikschas et al. (2017), the increased interaction of support functions within the joint sphere allows for enhanced co-creation practices which increase dynamic capabilities linked to adaption and innovation and result in the increased satisfaction and retention of customers.

7.3. Limitations

In order to allow for the cross analysis of service provider and customer populations within the context of a single exploratory study, the samples of the two populations were narrowed to include the participants of customer organisations with a single service provider organisation. Given the single service provider, the representation of the results of the study may or may not be representative of similar service providers within the specific environment as well as for the broader industrial business environment both locally and internationally.

Sample selection methods represent further challenges to the representation and validity of data due to the requirement for non-probability purposive and stratified sampling methods used through the study (Cunningham et al., 2012). Due to the two populations identified for analysis through the study and the limited time constraints, ten customers

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and ten service providers were interviewed for the research study. While coding saturation was achieved on the 18th interview, the differences identified between subgroups within the units of analysis highlight the need for larger sample sizes in order to definitively provide for the correlation of results for different subgroups. It is evident through the results that due to the limited sample size, results for surface operations were skewed toward operational management while underground customers were skewed toward senior managers removed from daily operations.

Lastly, due to the qualitative and interpretive nature of the study, the knowledge of the researcher is likely to have influenced results obtained in the study through underlying biases and preconceptions with regard to the collection and interpretation of data (Cunningham et al., 2012; McCracken, 1988; Saunders & Lewis, 2012). For this research, methods and analysis techniques have been described throughout the research report to allow for analysis of validity and repeatability.

7.4. Suggestions for future research

Due to the limited nature of this study and the varying focus areas identified through customer subgroups, the need exists for further empirical studies on the effects of alignment between service providers and customers. Given the possible correlation of system thinking with the attribute for management distance from operational decisions, further research is required in order to understand the focus areas of customers with regard to their management distance from operations.

Further, as identified through the study, a need for alignment exists not only between customer facing personnel and the customer within the joint sphere (Grönroos & Voima, 2013), but also between the support functions and customer facing personnel within the service provider organisation. While this study allowed for a comparison of the factors of alignment between service providers and customers, a need exists to evaluate the alignment of all functions that participate in the value creation process throughout the provider, joint and customer spheres.

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8. Appendices

8.1. Discussion guide:

8.1.1. Customer discussion guide:

1. Background of the interviewee
    a. Role in the organisation
    b. Length of employment
    c. Field of study/training
2. Background of the organisation
    a. Size of the organisation / operation
    b. Primary industry - Surface/underground/contractor
    c. What products & services do you source from the supplier?
    d. How long have you used the services of this supplier?
3. Sales/service process
    a. Do you prefer the services of this supplier to alternate suppliers?
        i. If so, what led you/not to prefer the services of this supplier?
        ii. What in your opinion are the supplier's strengths
        iii. What in your opinion are the supplier's weaknesses
    b. Which teams/departments in your organisation routinely interact with the supplier?
    c. Which teams/departments from the supplier routinely interact with your organisation?
    d. How does communication usually occur?
        i. Is this method of communication effective in achieving desired outcomes?
        ii. How could the supplier improve communication or interaction?
    e. Is your supplier proactive in implementing new systems to serve you better?
    f. In what area does focused effort by the supplier add the most value to your operations?
    g. Do you ever struggle to obtain information from the supplier?
    h. Do you ever 'sit' on information that could increase the effectiveness of the supplier on your operations?

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i. Are the skills and training of the supplier's personnel effective in meeting your operational requirements?
    i. Are there specific skills that should be improved to better meet your requirements?
j. How does the organisational culture of the supplier influence the service that you are provided?

8.1.2. Supplier discussion guide:

1. Background of the interviewee
    a. Role in the organisation
    b. Length of employment
    c. Field of study/training
2. Sales/service process
    a. What business practices do you believe customers value the most?
        i. What in your opinion are our areas of strength
        ii. What in your opinion are our areas of weakness
    b. Which teams/departments in our organisation routinely interact with the supplier?
    c. Which teams/departments from the supplier routinely interact with our organisation?
    d. How does communication usually occur?
    e. Is this method of communication effective in achieving the desired outcomes?
    f. How could the company improve communication/interaction with the customer?
    g. Is our company proactive in implementing new systems to serve the customer better?
    h. In what area does focused effort add the most value to customers operations?
    i. Do you ever struggle to obtain information from the customer?
    j. Do you ever 'sit' on information that could improve the customer's operations?

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k. Are the skills and training of our personnel effective in meeting the needs of customers?
    i. Are there specific skills that should be improved to better meet the needs of customers?
l. How do you believe our company culture influences the service that company personnel provide to our customers?

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8.2. Attribute codes and family groups

Code Family: 1 - BME Classification	BME Axxis blasters	1
Created: 2017-10-08 16:44:37 (Super)	BME Blasting team	9
Codes (10):	BME Creditors	6
Quotation(s): 65	BME Engineering	1
	BME Logistics	1
	BME Operations team	14
	BME Product Managers	1
	BME Senior Management	4
	BME Technical team	26
	BME Truck operator & assistant	3
Code Family: 1 - Customer Classification	Cus Blasting team	16
Created: 2017-10-08 16:42:32 (Super)	Cus Head Office	5
Codes (13):	Cus load & haul team	2
Quotation(s): 87	Cus management	17
	Cus mining team	4
	Cus optimisation team	1
	Cus Planning team	3
	Cus supply chain	10
	Customer Finance	23
	Decision maker	1
	LARGE CUSTOMERS	21
	SMALL CUSTOMERS	19
Code Family: 1 - DESCRIPTIVE	Competitor	3
Created: 2017-10-07 16:13:38 (Super)	EXPERIENCE -10YRS	9
Codes (9):	EXPERIENCE +20YRS	6
Quotation(s): 53	EXPERIENCE 10-20YRS	4
	MIDDLE MANAGEMENT	6
	NO FORMAL TRAINING	8
	NQF LEVEL 4-6	5
	NQF LEVEL 7+	7
	SENIOR MANAGEMENT	6
Code Family: 2 - Desirable Traits	+ Customer comment	125
Created: 2017-10-20 10:53:11 (Super)	+ Supplier comment	66
Codes (2):		
Quotation(s): 191		
Code Family: 2 - Quotes	Q - Customer comment	31
Created: 2017-10-08 17:31:17 (Super)	Q - Supplier comment	29
Codes (2):		
Quotation(s): 60		
Code Family: 2 - Strengths	S - Customer comment	76
Created: 2017-10-08 17:40:54 (Super)	S - Supplier comment	51
Codes (2):		
Quotation(s): 127		
Code Family: 2 - Undesirable Traits	- Customer comment	10
Created: 2017-10-20 19:40:12 (Super)		
Codes (1):		
Quotation(s): 10		
Code Family: 2 - Weaknesses	W - Competitor	7
Created: 2017-10-08 17:31:02 (Super)	W - Customer comment	44
Codes (3):	W - Supplier comment	144
Quotation(s): 195		
Code Family: 3 - General Topics	Communication	25
Created: 2017-10-24 10:32:57 (Super)	Culture	32
Codes (3):	Interaction	48
Quotation(s): 102		

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8.3. Descriptive codes and family groups

HU:	Value Co-creation
File:	C:\Users\selwyn.pearton\Desktop\GIBS MBA\DISSERTATION\Coding & Data Analysis\Value Co-creation.hpr7

Code Family: Service Culture	Customer service	68
Created: 2017-10-19 17:56:23 (Super)	Flexibility	37
Codes (14):	Proactive	25
Quotation(s): 185	Customer support/backup	23
	Reliability	19
	Arrogance v Respect	9
	Common purpose	9
	Decentralized - fast decisions	8
	Reactive	7
	Engaged	4
	One stop shop	4
	Overpromise	4
	Adaptability	2
	Customer satisfaction	1
Code Family: Mine Performance	Product quality	30
Created: 2017-10-08 17:23:59 (Super)	Mine optimisation focus	28
Codes (9):	Customer coaching/training	23
Quotation(s): 131	Measurement	21
	Product application	19
	Cost focus	15
	Safety	9
	Support from Customer	6
	Customer specific knowledge	4
Code Family: Relationship Focus	Relational	47
Created: 2017-10-20 10:34:37 (Super)	Honesty	16
Codes (10):	No BME management interaction	10
Quotation(s): 88	Trust	8
	Customer 'ownership'	5
	Engaging with personnel at the face	2
	Customer individualism	1
	Difficult customer	1
	Low staff turnover	1
	Small industry	1

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Code Family: Skills & Training	Skills & Training	47
Created: 2017-10-08 17:19:23 (Super)	Practical experience	15
Codes (7):	Capacity & competencies	12
Quotation(s): 72	Continuous learning	5
	Critical thinking/Root cause analysis	3
	Planning	2
	Prioritization	2
Code Family: Information	Information management/availability	44
Created: 2017-10-08 16:58:33 (Super)	Information reporting	25
Codes (5):	Transparency	6
Quotation(s): 69	Information Leverage	3
	Real time/Live information	2
Code Family: Communication	Communication - BME to Customer	49
Created: 2017-10-07 16:23:09 (Super)	Interaction - face to face	22
Codes (12):	Communication Internal - BME	18
Quotation(s): 104	Marketing communication	9
	Corrective/Change management	7
	Communication - Customer to BME	4
	Communication - Customer to Customer	3
	Failure to communicate	3
	Supplier knowledge	3
	Open communication	2
	Concise/regular communication	1
	Time constraints	1
Code Family: Communication Method	Verbal/phone/skype	33
Created: 2017-10-24 10:36:09 (Super)	Email	22
Codes (7):	Contract & KPIs	18
Quotation(s): 75	Supporting documentation (paper trail/ema	7
	sms/WhatsApp groups	3
	Written reporting	2
	Radio	1
Code Family: Governance	Risk	20
Created: 2017-10-20 11:20:55 (Super)	Governance	7
Codes (4):	Policies & procedures	4
Quotation(s): 31	Legal	3
Code Family: Continuous Improvement	Product development	28
Created: 2017-10-20 10:30:37 (Super)	Competitive offering/differentiation	13
Codes (7):	Customer need identification	5
Quotation(s): 51	Resistance to change	4
	Self interest	4
	Customer risk mitigation	2
	Ease of use	1

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