



Fig. 2. Model after PLS-SEM analysis.

Table 4
Summary of hypotheses testing.

No.	Hypotheses	β and p-value	Outcome
H1	Big data powered artificial intelligence has a positive relationship with customer knowledge creation	$\beta = 0.67, p < .01$	Supported
H2	Big data powered artificial intelligence has a positive relationship with user knowledge creation	$\beta = 0.51, p < .01$	Supported
H3	Big data powered artificial intelligence has a positive relationship with external market knowledge	$\beta = 0.60, p < .01$	Supported
H4	Customer knowledge creation has a positive relationship with B2B marketing rational decision making	$\beta = 0.27, p < .01$	Supported
H5	User knowledge creation has a positive relationship with B2B marketing rational decision making	$\beta = 0.38, p < .01$	Supported
H6	External market knowledge creation has a positive relationship with B2B marketing rational decision making	$\beta = 0.86, p < .01$	Supported
H7	B2B marketing rational decision making has a positive relationship with firm performance	$\beta = 0.72, p < .01$	Supported

Further, Wacker (2008) stressed that academic research focuses on theory building. Good theories can be used to understand specific situations. Researchers need to enhance theory to make a theoretical contribution (Reay & Whetten, 2011). The fundamental building blocks of theory necessitates that researchers search answers for the four questions i.e. what are the main elements that are important to the elucidation of the phenomenon of attention? How are these main elements linked with one another? Why does this depiction of the phenomenon justify to be considered reliable? What are the settings under which researcher ought to assume the predictions of the theory to hold correct?

Byron & Thatcher (2016) provided recipes for making theory building and making theoretical contributions. Using KMT theory as a theoretical lens the research team answered two research questions in this study.

RQ1. Can big data powered AI enhance knowledge creation in B2B marketing? and **RQ2:** Can knowledge creation improve B2B rational marketing decision making and further enhance firm performance?

The results indicate that the path “big data powered artificial intelligence and customer knowledge creation” is significant. Hence, H1 is supported. Second, the path “big data powered artificial intelligence and user knowledge creation” is significant which supports H2. Third, “big data powered artificial intelligence and external market knowledge creation” is significant which supports H3. Fourthly, the path “customer

knowledge creation and B2B marketing rational decision making” was found to be significant and H4 was supported. Fifth, the path “user knowledge creation and B2B marketing rational decision making” was found to be significant and H5 was supported. Sixth, the path “external market knowledge creation and B2B marketing rational decision making” was found to be significant and H6 was supported. Finally, the path “B2B marketing rational decision making and firm performance” was found to be significant. Hence, H7 was supported.

It is clear from the findings that AI is changing the marketing landscape as previously indicated by Davenport et al. (2019). Mining industry operations are complex and face many challenges related to energy access, strict health and safety regulations, capital, commodity price volatility and the environmental footprint, which makes the buying and selling processes for mining companies very complex and strict (Hamann, 2003). Marketers who deal with mining companies therefore face many barriers when conducting B2B transactions. Mining and mineral processing companies tend to use sustainability practices to enhance business performance (Gomes, Kneipp, Kruglianskas, da Rosa, & Bichueti, 2014). Marketers need to consider sustainability parameters in their product and service offering while dealing with mining and mineral processing companies. The current research applied Knowledge Management theory to better understand the ways B2B marketers leverage big data to empower AI, and the empirical testing of the theoretical model has yielded insights that can potentially make rich theoretical contributions. Big data powered AI enhances customer knowledge creation, user knowledge creation and external market knowledge creation, which further improves B2B marketing rational decision making and finally improves firm performance. Although these findings are supported by the work of Paschen et al. (2019) but current research findings offer some interesting insights such as the impact of BDAI on customer knowledge creation is found to be much stronger than the impact of BDAI on external knowledge creation and user knowledge creation. It is therefore clear that B2B marketers in South African mining and mineral processing industry prefer to leverage BDAI and use structured and unstructured data of different nature and perform analysis related to attitude and behaviour of customers. In addition, machine learning and predictive analytics tools are increasingly used to create profile of future customers and develop relationship strategy accordingly. It was found that external market knowledge creation has more impact on B2B marketing rational decision making than customer knowledge creation, user knowledge creation.

Finally, the results indicate that B2B marketing rational decision making is very important for the strong performance of firms. Syam and Sharma (2018) and recently Dwivedi et al. (2019) have rightly pointed out that the fourth industrial revolution will be disrupted by artificial intelligence powered by big data technology. These advanced technologies will impact B2B marketing and sales management (Davenport et al., 2019). The theoretical contributions and implications of current

Sixth, external market knowledge creation has a positive relationship with B2B marketing rational decision making. Finally, B2B marketing rational decision making have a positive relationship with firm performance. The paths are unique and highlight that knowledge management

using BDAI is important for B2B marketers to survive in this competitive environment. In this process, this study advances the theoretical debate surrounding AI application in B2B decision making.

Appendix A. Operationalization of constructs

Constructs	Code	Items	Adapted from
Big data powered Artificial intelligence (BDAI)	BDAI1	Our organisation has access to unstructured and structured data sets	Dubey, Gunasekaran, & Childe, 2019, Dubey, Gunasekaran, Childe, Blome, & Papadopoulos, 2019)
	BDAI2	Our organisation amalgamates internal and external data for value analysis business environment	
	BDAI3	We apply advanced analytical techniques for decision making	
	BDAI4	We use computing techniques (e.g. Hadoop) for processing of large data sets	
	BDAI5	We use data visualization methods to decode complex data	
	BDAI6	Our management have approved budget for big data and artificial intelligence project	
	BDAI7	We give BDAI training to our employees	
	BDAI8	We appoint persons having long experience in handling BDAI	
	BDAI9	We have collaborated with DTI and Universities for implementing BDAI projects	
	BDAI10	Our BDAI team coordinate effectively with other departments and stakeholders	
	BDAI11	AI bots can assist sales team by automating certain steps of sales and improving capabilities of sales force	
Customer Knowledge Creation (CUK)	CUK1	BDAI can be used to utilise structured and unstructured data of different nature and perform analysis related to attitude and behaviour of customers	Paschen et al. (2019)
	CUK2	Machine learning and predictive analytics tools can be useful to create profile of future customers and develop relationship strategy accordingly	
	CUK3	BDAI can improve every process involved in B2B sales activity	
	CUK4	AI can be used to identify prospects	
	CUK5	AI can automate sales process and schedule meetings and further answer common questions	
	CUK6	AI presentation bots can assist B2B sales force in making mind blowing presentations	
	CUK7	AI can be useful in convincing customers and beat customers by improving own value offerings	
	CUK8	AI can be useful in automatic order follow-ups and order processing	
User Knowledge Creation (USK)	USK1	User knowledge is important for developing new products and enhancing creativity	Paschen et al. (2019)
	USK2	AI can perform content analysis and provide insights about users' likings and disliking	
	USK3	The AI system can understand emotions and attitudes in a text	
	USK4	Psychographic characteristics can be a valuable source of insight for B2B marketers in development of new products	
	USK5	AI can be used to identify themes and patterns in social media post related to product buying and their product use experiences	
	USK6	AI-enabled knowledge about users may indicate how users modify some products themselves and such information can be helpful for new product developments	
External Market Knowledge Creation (EMK)	EMK1	BDAI can be used to gather intelligence about external market forces and stakeholders	Paschen et al. (2019)
	EMK2	BDAI enables external market knowledge	
	EMK3	AI systems using NLP and ML algorithms are more and more used to examine and identify fake news content	
	EMK4	AI can enable B2B marketers develop competitive intelligence	
B2B Marketing Rational Decision Making (BMD)	BMD1	AI is believed to be able to help organisational employees to make better decisions and improve creativity	Duan et al. (2019)
	BMD2	AI based expert systems in a support role can help users make good decisions	
	BMD3	This insight gained through AI based knowledge creation can be useful in understanding firm's current position against competitors	
	BMD4	This insight gained through AI based knowledge creation can caution marketers to remain alert about their brands and identify fake news that can cause harm to the brand	
	BMD5	AI technology enables in undertaking complex work and make sound judgements	
Firm Performance (FIP)	FIP1	Our firm is able to retain customers much better than competitors	Wamba et al. (2017)
	FIP2	Sales increase has happened in our firm	
	FIP3	Our firm is able to achieve high profit margins	
	FIP4	Return on investment is higher in our firm	
	FIP5	Overall financial performance has improved in our firm	
	FIP6	We have entered new markets more quickly than our competitors	
	FIP7	We have introduced new products or services to the market faster than our competitors	
	FIP8	Our success rate of new products or services has been higher than our competitors	
	FIP9	Our market share has exceeded that of our competitors	

