

# IDENTIFYING PRIORITY AREAS FOR VALUE CREATION IN THE ZIMBABWEAN PORK INDUSTRY

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**Abstract.** Value creation is indispensable in enhancing agribusiness performance. However, there is a need to identify priority areas to unlock industry potential. The study sought to highlight particular areas within the Zimbabwean pork industry where value creation could offer the industry advantage. A survey of 24 pork butchers, 6 pork processors and 166 pig farmers from Mashonaland Central Province was utilised in the study. Descriptive statistics, correlation, ANOVA and multiple regression were used to analyse the data. The results highlighted that the industry regarded value creation through advantage in the acquisition of inputs, goods and services, production/processing, and logistics, which consequently makes those key target areas. Furthermore, the created value (profit/cost ratio) was influenced by the category of agribusiness, distance to markets, business practice and socio-economic dynamics of the business decision-makers. In conclusion, production and processing, as well as inbound logistics, were identified to be less effective in value creation. However, increasing transportation advantage will likely improve value. The study recommends that the pork industry leverage on production/processing, inbound logistics and transportation. Policy implications relate to the creation of a conducive environment in input procurement and transportation. The study adds insights for business strategy and policy formulation, aiding in enhancing turnover and strategic positioning.

**Keywords:** agri-business, entrepreneurship, pork industry, Porter (1985), strategy, value creation, Zimbabwe

## INTRODUCTION

Value creation is a prerequisite for agri-business improvement and survival (Sadovska et al., 2020). Furthermore, value creation, which recognises a need, articulates demand, and designs innovative solutions, is an essential ingredient in enhancing entrepreneurship, organisation, country and regional performance (Giner, 2009; Rannia and Triekens, 2012). Value creation in the context of this study was adopted from Porter (1985) who divides it into primary and secondary activities. The primary activities, such as inbound logistics and processing, are involved in the direct transformation of a product whilst the secondary activities, such as human resources as well as research and development, support the primary activities. Value creation depends on scientific research, accumulated knowledge, experience and entrepreneurship. Various value creation insights within the agricultural, food and agri-business sector have been realised. Some of them relate to information management, general management, food, seed, chemistry and machinery. The value created is quintessential in resource use and sustainability, combating environmental challenges, food and energy scarcity and security, as well as climate change and global warming (Boehlje et al., 2011). Most value creation endeavours have been attributed to the “demand pull”, responding mainly to consumer demands or expectations for goods and services, as well as potential profits. To a lesser extent, however, the “supply push”, where value creation

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expenditure arises new products and processes, has been identified (Giner, 2009).

The most value created in pork industries has focused on technology adoption and productivity increases. This has been driven by economic pressure (input and output prices), law and regulation (cost of compliance and trade) (Rannia and Triekens, 2012). The length and complexity of the value chain have been other factors relating to value created. Triekens (2011) highlights that value chains are vehicles through which new forms of networks, organisational relations, labour processes, logistics, technologies and products can be introduced into enterprises. Furthermore, constraints in market access and orientation (local, regional and international), resources and infrastructure, as well as institutional voids (regulative, cognitive and normative) were major impediments to value creation. The challenging features of livestock products, such as the perishability, regulatory constraints, high cost of processing and logistics, make value creation imperative in improving industry efficiencies (Puskur et al., 2011).

Marketing distances, climatic sensitivity, weight gain, lactation, multiple non-market uses and interaction with crop production, which characterise livestock production systems of developing countries, as well as the varying levels of livestock trading and transactions, processing, and various employment creation services and input supplies, make any value creation essential in improving the performance of various livestock-based agro-industries (Puskur et al., 2011).

Nearly half of the global agricultural output is obtained from livestock (Ngarava, 2019), with 40% of the world's population consuming pork (McGlone, 2013). According to Pica-Ciamarra et al. (2013), by the year 2050, Africa will be consuming 3.5 million tonnes of pork annually whilst producing 1.5 million tonnes. An increase in real incomes per capita, population growth and urbanisation will fuel a total market of 34.8 million tonnes (McGlone, 2013). By the year 2050, Southern Africa's pork market share will constitute 37.1% of the continent's (Pica-Ciamarra et al., 2013).

In the Zimbabwean livestock sector, the pork sub-sector is not integral, at 3.5% of total livestock assets (FAO, 2014). There have been various factors that have negatively affected the pork value chain in Zimbabwe. These include inbreeding from inferior breeds, destocking and exorbitant stock feeds as well as climate change which affects stock feed constituents. Incoherent

and inconsistent policies regarding trade, VAT, indigenisation and land reform have also been impediments in Zimbabwe's pork sector (CFU, 2015).

To keep up with the anticipated boom in livestock consumption, business and market opportunities, appropriate technologies, methodologies and development within the sector should come into the fray. An appropriate entry point would be to identify key target areas or points for the industry to focus on a more competitive product. Besides being one of the most significant factors for economic development, agricultural value creation has slowed, particularly in less developed countries, and at times has proven unsuccessful (Van Rijn et al., 2012). The study aimed to identify priority areas for value creation in the Zimbabwean pork industry. This was achieved through the identification of particular activities within a particular pork agri-business, pinpointing the most significant ones, thereby providing a base upon which value creation could be incorporated within the various levels of the value chain. Zapata and Hinestroza (2014) emphasised that enterprises should materialise value-creating practices and generate economic growth within innovation activities. Giner (2009) indicates that not only there is a need for value creation accrued because of an anomaly, especially in an enterprises' course of activity, but also it is necessary to extend the horizon and seek opportunities to use specialised technologies, processes and assets to create "new combinations". Further to that, even though there have been various innovations in pork industries globally, their specific location determines an enterprises capacity to create value and ultimately utilise new novelties (Giner, 2009).

## LITERATURE REVIEW

Various studies have been undertaken to assess how value is created, with many focusing on the industry value chain (Parwez, 2014; Lindgren and Wynstra, 2005; Triekens and Wognum, 2013). Ohal (2015) identified farmer entrepreneurs creating value in different ways through the quality of their produce, differentiated produce and customer equity. Prahalad (1993) supported this by improving efficiency by identifying and exploiting the "performance gap". Gow et al. (2003) justifies this by indicating that efficient management of quality, costs, cycle time, logistics and productivity lead to greater profit. However, the magnitude of improvements is quite small, and it is finite. Nonetheless, Prahalad

(1993) mentions the need to exploit and enhance opportunity gaps to improve value creation. Leat and Revoredo-Giha (2013) indicated that there are four forms of value that industry players could conform to: use value, esteem value, cost value, and exchange value. Furthermore, the total value created tended to be the difference between the supplier opportunity cost when selling the goods or service and the buyer willingness to pay (Leat and Revoredo-Giha 2013). Gow et al. (2003) pointed out that the key to unlocking value within livestock industries is through optimising performance and operating efficiency. However, it is not sufficient to identify “productivity gaps” without referring to “opportunity gaps”. For value creation to be fruitful innovation-based productivity and opportunity gaps must be availed of exploited, mainly through skills, resources and core competencies (Gow et al., 2003).

To foster an environment of innovation and value creation in meat supply chains, Katz and Boland (2000) and Taylor (2006) have indicated the significance of vertical integration. In this regard, Boehlje et al. (1999) determined the need for innovations in efficiency and controlling aspects such as flow scheduling and capacity utilisation, tailor-made pig hybrids, quality standard conformation into an integrated and coordinated product flow system, and adapted husbandry/enterprise practices. Innovative strategies that reduce risk in pork industries include contracting which has reduced high price risk for input acquisition as well as the subsequent sale of products, quantity shortage risk for both inputs and output. This can also be attained through vertical integration, thereby reducing market fluctuation impact. Novelty in responding to consumer needs within pork industries includes differentiation, especially in what the product does or does not contain, which has been attributed to the production or processing of individual enterprises. Convenience vis-à-vis price in acquiring the pork products have also been some of the innovations typical for pork industries (Boehlje et al., 1999).

A more celebrated method in articulating value creation within individual businesses and enterprises has been that devised by Porter (1985). Rightly so, before developing sentiment about industrial, regional and global value chain, individual enterprises require entrepreneurship to create value which then cascades into the larger value chain systems. According to Porter (1985), value creation can be attained through two activities: primary and secondary/supporting ones. The secondary

or supporting activities are not directly involved in the production, mainly comprising of purchasing and procurement, research and development technology development, human resources and infrastructure. The primary activities are directly involved in value creation (Reclies, 2001), comprising activities such as inbound logistics, product development, distribution, sale and servicing. The primary and secondary activities work in tandem, to effectively create a product, and are thus involved in value creation (Hunger and Wheelen, 2011).

Proponents of the model, such as Simmons et al. (2003) and Van de Berg et al. (2009), argue that it is an indispensable tool in identifying a range of salient issues at the intra and inter enterprise level, whilst opponents such as Triekens (2011) and Webber (2007) indicate that it is only functional at the industry level. Furthermore, the method cannot be used in decision making. However, the model is an effective tool in highlighting the areas within which an organisation needs to concentrate to improve efficiency and effectiveness.

## MATERIALS AND METHODS

The study was carried out in 2019 in Mashonaland Central Province, Zimbabwe (Fig. 1), and focused on pork butcheries, pork abattoirs and pig producers.

The study used a cross-sectional survey design and mixed sampling methods. The study area was purposively selected and then a random sample was selected from each stratum of producer, abattoir and butchery. A sample of 226 was randomly selected utilising (Yamane, 1967) method as shown from Equation 1 and Table 1.

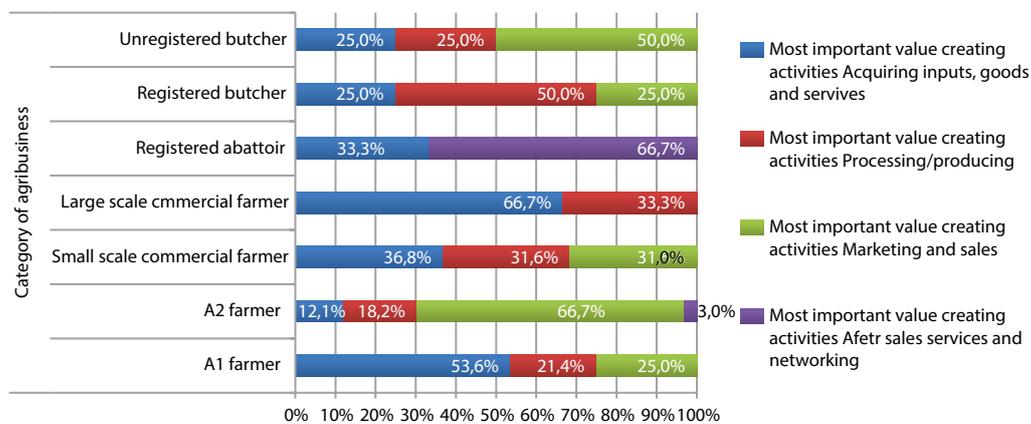
$$n = \frac{N}{1 + N(e)^2} \quad (1)$$

Where the size of the sample is  $n$ , the size of the population is  $N$ , 518 in this case, and the degree of freedom is  $e$ , which is 95% (Table 1).

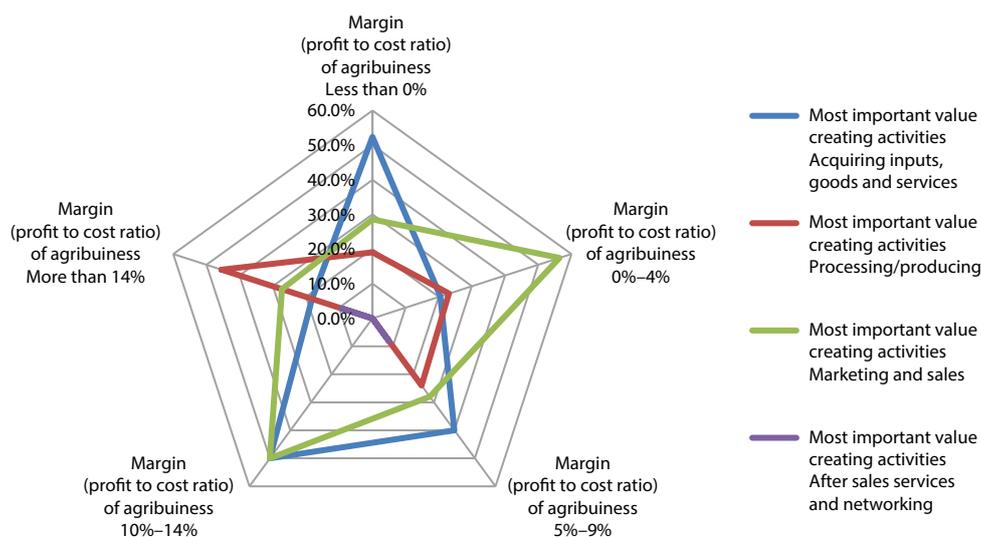
$$n = \frac{518}{1 + 518(0.05)^2} \\ n = 226 \quad (2)$$

A structured, standardized and pre-coded questionnaire was utilised to collect data. Descriptive statistics, correlation, ANOVA and multiple regression were used to analyse the data. In the study, the value created was measured as a percentage ratio of profit to cost.





**Fig. 2.** Category of agri-business and value creating activities  
Source: own elaboration.



**Fig. 3.** Profit to cost ratio and value creating activities  
Source: own elaboration.

and requires efficient marketing and sales which are hampered by erratic electric energy supply. Acquisition of inputs, goods and services were mostly identified by the pig farmers because of the informality of stock feed supply in the industry (Chamboko and Erasmus, 2014).

Figure 3 highlights that entrepreneurs who highly regard the acquisition of inputs, goods and services as being significant have a negative profit to cost ratio. Most of the respondents that rated marketing and sales as important have a profit to cost ratio ranging between 0 and

4%. Respondents with a profit to cost ratio of more than 14% achieved such results mainly through their prowess in producing/processing. Ohal (2015) indicated that there are several ways of value creation in agriculture, including product quality, differentiation and profitability (Ohal, 2015).

Table 2 shows mean differences in the value creation activities adjudicated to being significant ( $P_{\text{values}} < 0.05$ ). The Tukey Post Hoc analysis indicates that there are significant differences between acquisition of inputs, goods

**Table 2.** Mean differences in value crating activities

(I) Most important value creating activities	(J) Most important value creating activities	Mean difference (I-J)	Std. error	Sig.	95% confidence interval	
					lower bound	upper bound
Acquiring inputs, goods and services	Processing/producing	-0.48958	0.21996	0.120	-1.0597	0.0805
	Marketing and sales	-0.08894	0.19429	0.968	-0.5925	0.4146
	After sales services and networking	-1.44792*	0.49185	0.019	-2.7226	-0.1732
Processing/producing	Acquiring inputs, goods and services	0.48958	0.21996	0.120	-0.805	1.0597
	Marketing and sales	0.40064	0.21133	0.233	-0.1471	0.9483
	After sales services and networking	-0.95833	0.49883	0.223	-2.2511	0.3345
Marketing and sales	Acquiring inputs, goods and services	0.08894	0.19429	0.968	-0.4146	0.5925
	Processing/producing	-0.40064	0.21133	0.233	-0.9483	0.1471
	After sales services and networking	-1.35897*	0.48805	0.030	-2.6239	-0.0941
After sales services and networking	Acquiring inputs, goods and services	1.44792*	0.49185	0.019	0.1732	2.7226
	Processing/producing	0.95833	0.49883	0.223	-0.3345	2.2511
	Marketing and sales	1.35897*	0.48805	0.030	0.0941	2.6239

\*The mean difference is significant at the 0.05 level.  
Source: own elaboration.

**Table 3.** Correlation of profit to cost ratio and value creating activities

		Margin	Acquiring inputs, goods and services	Processing/ producing	Transportation	Marketing and sales	After sales services and networking
Margin	Pearson Correlation	1	-0.144*	-0.360**	0.200**	-0.55	0.076
	Sig. (2-tailed)		0.044	0.000	0.005	0.448	0.287
	N		196	196	196	196	196
Acquiring inputs, goods and services			1	0.158*	0.024	-0.05	-0.68
				0.027	0.739	0.950	0.344
				196	196	196	196
Processing/ producing				1	-0.139	-0.66	0.054
					0.52	0.361	0.453
					196	196	196
Transportation					1	0.165	0.320**
						0.021	0.000
						196	196
Marketing and sales						1	0.213**
							0.003
							196
After sales services and networking							1

\*Correlation is significant at the 0.05 level.  
\*\*Correlation is significant at the 0.01 level.  
Source: own elaboration.

**Table 4.** Multiple regression analysis of factors influencing value creation

	Coef.	Beta	Sig.
Category of agri-business	0.290***	0.485	0.000
Pork product portfolio	0.158	0.060	0.316
Position of respondent in the agri-business	-0.128	-0.092	0.116
Gender of respondent	-0.102	-0.041	0.388
Age of respondent	-0.175***	-0.149	0.008
Highest qualification of respondent	0.246***	0.180	0.001
Agri-business location	0.312*	0.158	0.044
Period of existence of agri-business	0.018	0.015	0.804
Average number of carcasses/pigs handled in a month	0.172***	0.149	0.006
Distance furthest buyer travels	-0.513***	-0.359	0.000
Model Summary			
Adjusted $R^2$	0.615		
$R^2$	0.635		
Sig.	0.000		

\*Significant at the 0.05 level.

\*\*Significant at the 0.01 level.

and services with after-sales services and networking as well as with marketing and sales and after-sales services and networking at  $P_{\text{values}} < 0.05$ .

There was a significant association between value creation and transportation of produce, producing/processing and acquisition of inputs, goods and services (Table 3). The largest correlation was observed for processing or production ( $r = 0.360$ ), whilst the least was for marketing and sales ( $r = -0.055$ ). According to Gow et al. (2003), production/processing is the most significant value-creating activity due to the exploitation of productivity and opportunity gaps. This was attributed to agri-businesses being price takers, especially at the producer level. To unlock value through operational efficiencies, agri-businesses should optimise their performance. However, there are trade-offs between long and short term value creation by overly focusing on the productivity gap (Gow et al., 2003). According to Buhr (2004), marketing strategies are essential for success, however, the production/processing cannot be ignored. Particularly, managing the yield/price inventory and relationships as well as production system coordination ensures success (Buhr, 2004).

Table 4 shows that profit to cost ratio as a proxy to value creation is influenced by the location of the agri-business ( $P < 0.05$ ), agri-business category, age distribution, educational qualifications, merchandise handled and distance buyers travel to purchase pork products ( $P < 0.05$ ). Location and distance have a relationship with infrastructure availability providing incentives for coordination (Ajala and Adesehinwa, 2007; Shiferaw et al., 2011).

## CONCLUSION AND RECOMMENDATIONS

In conclusion, production and processing, as well as inbound logistics, were identified to be less effective in value creation. However, increasing transportation advantage will likely improve value. Marketing, as well as after-sales services, were not significant in value creation. Value creation was also influenced by various socio-economic variables. The study recommends that the pork industry leverage on production/processing, inbound logistics and transportation. This is through backward and forward vertical integration which has advantages over portfolio diversification and risk reduction.

Input logistics can be enhanced through bundling unaffordable inputs such as veterinary and extension services by incorporating these as a product bundle in contracts, especially at the producer level. Policy implications related to the creation of a conducive environment in input procurement and transportation. For instance, reduction in the regulatory cost of compliance in production and transportation of pigs, which constitute 4.8% and 7.8% of the total cost, to large scale and small-scale farms, respectively. Tax rebates on efficient equipment importation to improve the production and processing of pork products can also be instituted. Further studies are required for further identification of activities within inbound logistics, production/marketing and transportation to augment the findings.

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