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FACTORS DETERMINING THE DEVELOPMENT OF LIVESTOCK: THE MEDIATING EFFECT OF INNOVATION IN KAZAKHSTAN

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Abstract

Livestock development has encountered various challenges that have increased the rate of hunger and poverty among the stakeholder and led to low economic growth. However, Livestock entrepreneurship plays a significantly important role globally in ending malnutrition and hunger, increasing economic growth and creating a faster method for poverty reduction. In Kazakhstan, livestock development experienced a huge loss in productivity, resulting in poor leadership ability, competition orientation, production orientation, financing, and innovation. It further reduces Kazakhstan's GDP growth and effectively reduces the stakeholders' expansion of livestock. Hence, this study aimed to examine the factors determining livestock development: the mediating effect of innovation in Kazakhstan. Simple random sampling was adopted to aid quantitative analysis in generating data from the respondents (farmers and livestock stakeholders). The questionnaire was self-administered in obtaining data that previously performed an expert validation to review the items. A pilot study with 100 respondents was conducted before the field study. Out of 430 questionnaires distributed, the researcher received 388, which gives success and a response rate of 90.23%. Hence, the sample size of this study was 388 and which met the required criteria. The researcher adopted the use of SPSS (version 26.0) and SmartPLS (PLS-SEM) version 3.36 in analysing the data obtained from the respondents, which helped to test the hypothesis of this study. This study confirmed a positive and significant relationship between leadership ability, competition orientation, production orientation, financing, innovation, and livestock development. It further proved that the result obtained from the discriminant validity ranged from 0.753 to 0.843 and proved a positive correlation. The mediating effect of innovation between leadership ability, competition orientation, production orientation, financing, and livestock development has shown positive and significant. It further yielded that the nine (9) hypotheses were positive and significant. In conclusion, the improvement of leadership ability, competition orientation, production orientation, financing and innovation has significantly impacted the development of livestock in Kazakhstan, which proved significant in promoting the economic growth of Kazakhstan. This study has helped address the gap found in the previous studies while contributing to the body of knowledge and enhancing livestock development in Kazakhstan.

Keywords: Livestock Development, Innovation, Leadership Ability, Orientations, Financial Constraints.

INTRODUCTION

Livestock is a major agricultural branch in Kazakhstan. It produces 47% of the gross agricultural product volume (Sadu, Kushebina & Kuhar', 2021). The significance of this branch is strongly influenced not only by its high share of agricultural GDP but also by its significant contribution to the agriculture industry. It is also vital for domestic and foreign customers as a food manufacturer. However, many challenges are being faced by this sector (Nurgalieva et al., 2021). During the years of economic reforms in Kazakhstan, the consumption of meat and meat products decreased significantly. Kerimova (2021) stated that meat consumption per capita was 68 kg in 2019, and it decreased in 2021 to 45 kg. The revival of the livestock sector in Kazakhstan can contribute significantly to the growth of agriculture, support rural livelihoods,

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especially among poor rural households, and use the extensive land resources available (Nurtayeva et al., 2021). Livestock farming in Kazakhstan is not new; it goes back to the 2nd millennium when it started with people rearing cattle, horses, camels, sheep and goats. Efficient processing of raw meat contributed to improved product production and increased meat industry revenue. It also raises high domestic food production for customers (Agumbayeva, 2021). Demand for domestic products is essential for increasing the production of the required meat quality in the agricultural livestock industry. In Kazakhstan, livestock development and its sustainability encountered various issues. Nowadays, the growth of the human population, increasing urbanisation, and increasing incomes are driving a massive increase in the demand for food of animal origin (milk, meat, eggs) in developing countries and more than ever in developed countries (Ospanov & Kulzhanova, 2020). However, they faced challenges in the beef producers, integration of production, low migration of products, and a tremendous unemployment rate. Moreover, it includes poor leadership ability, competition orientation, production orientation, financing and innovation. In addition, its challenges further lead to poor feeding and animal health, nearly no utilisation of technology, low productivity and low genetic potential. In addition, only 30% is used for grazing out 182.2 million hectares of Kazakhstan's pastures, while 70% of agricultural land is left out and dehydrated (Biymendeev, 2021; Akimbekova, 2021). Reforms in the agricultural sector, which are not sufficiently substantiated by science, have led to a decline in agricultural production, primarily cattle breeding. The structure of the agricultural sector, especially its vegetation and cattle breeding, has changed dramatically. For example, in 2020, the conventional stock per capita was reduced to 16.6 million, while in 2020, it was $7.5 million and reduced by 55%) and the total production of livestock products decreased by 77% (Akimbekova & Kaskabaev, 2020). In this case, the livestock sector's redistribution in the livestock category has changed: the proportion of agricultural enterprises has diminished in the number of livestock production. Currently, 9.8% of all livestock in the West Kazakhstan region (excluding conditional) is in the country. In addition, the size of the land area has also diminished in other agricultural enterprises (Omarov, Kalykov, Niyazbekova & Yessirkepova, 2021). On the local horizon, in Kazakhstan, almost all foods of animal origin are consumed by small family farms, where livestock is often combined with agriculture or shepherds (Konuspayev et al., 2021). It is expected that the current significant expansion in demand for livestock products for human consumption will have important technological and structural consequences for the livestock sector (Seitov, 2022). It will be necessary to significantly increase livestock productivity in Kazakhstan to meet consumer demand, efficiently use scarce resources, and generate income for an increasing agricultural population. However, Kazakhstan's literature and empirical findings on improving livestock productivity are underdeveloped. Currently, the government is in an uphill battle developing the livestock industry, as most farms are privately owned. But the government strives to facilitate the farms with support and assistance in finance, development programs and introducing prophylactic works, including veterinary and vaccinations services. On top of that, financial subsidies are provided to encourage farm owners to expand and improve fodder and livestock conditions (Sabenova, Issayeva & Alshembayeva, 2020). But the effectiveness of finance provided by the government in improving the livestock industry is not taken up and well explained in the literature. Despite the industry's rapid development, negative factors still

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affect the required growth needed in the industry. One of the issues is declining infrastructure. Steps have been taken to deal with these challenges by establishing improvement programs, but there is little ignorance of the institutional factors about the availability of the options. As a result, there is minimal growth in the livestock industry in Kazakhstan (Bazarbayev, Tundikbayeva & Kupeshova, 2020). From this angle, leadership ability is lacking among the livestock industry players. Aiguzhinova (2021) found that leadership ability contributes to livestock development in Kazakhstan. However, in the local context, more empirical evidence is needed to prove it. The contribution to human nutrition by livestock products is significant because it is a major source of high-quality protein. However, due to a lack of leadership ability, competition orientation, production orientation, and financial constraints have not been adequately utilised for livestock farming. Also, there isn't much attention to the innovation factor on the need to use technology to generate better livestock production outputs. However, livestock development creates vast challenges such as leadership ability, competition orientation, product orientation and financing availability in livestock development, which prompted this study's root cause to promote innovativeness toward developing the livestock in Kazakhstan. These challenges suggest that researchers investigate the antecedent factors determining livestock development in Kazakhstan.

LITERATURE REVIEW

Livestock Development

Livestock remains support for the global food system, food security and poverty reduction. The importance of livestock development does not stop there; currently, slightly more than the world's population lives in cities, which is expected to increase to 60 per cent by 2030 (Moseley, 2022). It raises serious questions about food insecurity, malnutrition and environmental pollution. In this study, it refers to raising the quality of livestock and offering the consumer milk, cheese and meats of the highest quality, promoting entrepreneurship and changing production systems, resulting in raising economic growth in return (Pickworth & Adams, 2022). Livestock is capital assets produced in the past and contributes to future product output. Investment in, or the acquisition of, livestock involves saving or borrowing, justified by the expected future return on capital. The 'landless' livestock production systems represent labour-using technology in that labour requirements per hectare (devoted to feeding production) are higher than in other systems. Conversely, animal draught power is labour-saving, reducing hand-labour requirements, particularly at peak work periods. Using the plough may allow a more significant proportion of the farmed area to be cultivated yearly, increasing cropping intensity (Yoon, Choi & Lee, 2022). Mixed crop-livestock production systems are essential as the source of the bulk of ruminant livestock production and the home of most of the poor. As intensity and numbers rise, crop-livestock interactions become increasingly competitive for land use and other resources. There is little interaction between crops and supplementary, landless livestock systems. Landless livestock systems provide most of the world's pig and poultry meat production. The majority is produced in developed countries and from large-scale commercial enterprises, now spreading in developing countries (Mugonya & Hauser, 2022). As part of its commitment to helping countries build sustainable, nutritious food

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systems, the World Bank is moving its livestock investments towards greater sustainability and climate-smart outcomes. All investments are designed with mitigation and adaptation in mind. An average of 61% of livestock financing over the last three years is directly tied to climate co-benefits (up from 55% in the previous period) (Tabe, Hauser & Mausch, 2022). Bank-supported projects seek to improve various dimensions of livestock systems and value chains. They use levers such as efficiency gains, balancing animal rations and sustainable sourcing of feeds, carbon sequestration in agricultural landscapes, energy-efficient technologies and renewable energy sources, animal health and welfare, and better manure management (Asmare, 2022). For example, the Sustainable Livestock Development Program in Kazakhstan, approved in 2020, includes ambitious environmental objectives to develop a sustainable beef sector and contribute to diversifying the economy away from oil and mineral resources. The program has helped to increase beef production while pursuing an absolute reduction of GHG emissions. It helps to improve in three ways: by increasing productivity and decreasing GHG emissions per unit of product through improved livestock management practices; by increasing soil carbon sequestration through improved grazing management practices; and by adopting energy-efficient equipment and renewable energy to reduce and displace fossil fuel use.

Leadership Ability

Leadership refers to intervening in developing competitiveness either in the market (livestock enterprise) or within the livestock enterprise (competitive human factor) (Lamm, Powell & Lamm, 2020). The leader can also interfere with the personality and attitudes or feelings of the group of people or work group. Samad, Muchiri and Shahid (2022) states that the qualities that researchers identified in the leaders of society throughout history must be the same as the leaders of the social organisation. Ahmed and Salim (2019) found that leadership ability contributes to livestock development in South Africa. The leader is a referential figure within a group of people; studies have described that a group of people who are in the guide to achieving a common goal needs a leader. As Ye, Liu and Tan (2022) point out, they indicate the importance of leadership style, in addition to the fact that its exercise has direct effects on decision-making processes and organisational results; that is, it affects group work, organisational climate and results. Steinfeld (2022) utilised leadership ability to affect livestock development. Leadership ability intervenes within many aspects and results in the organisation; therefore, the success or failure of the livestock enterprise is reflected. The leader has a great influence and responsibility in implementing any organisational change process. In the current era, changes and uncertainties emerge, and decision-making in times of crisis requires an effective and efficient leader to face external and internal challenges (AlAli & Nasser, 2021). The leader's qualities and characteristics influence the paradigms in a participatory manner from the outside world and organisational culture toward livestock development. Here, a leader's styles influence society's challenges with technological and economic dynamics, adding to the culture with changes that arise. According to Dayat and Anwarudin (2020) "there is no more important task in the progress of the leadership field than to identify the competencies and meta-competencies that make up a leader. Hwang and Krasa (2022) found that participatory leaders foster innovation at the team level by engaging in the decision-making process and acting in line with the superior's vision. Shen and Lei (2022) find that managerial

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leaders drive innovation processes through control, supervision, instruction, and hierarchical influence in the livestock development of Kazakhstan.

H_1: There is a relationship between leadership ability and livestock development.

Competition Orientation

Companies with a competitive orientation seek profits and a broader market segment than any other competitor (Bakolas & Park, 2022). It is believed that managers make profitable decisions to undermine the opponent's price in the mistaken belief that increased market share could improve long-term benefits. The negative impact on the profitability of competitive orientation may seem contrary to intuition, especially with so much corporate strategy literature that describes the art of leadership as something analogous to war (Putri & Setiawan, 2022). A contestant-oriented victory only cares about the other's defeat by any means necessary. Zouaoui and Zouaoui (2022) tested the impact of competition orientation on livestock development in Kazakhstan. This orientation is similar to the mentality of companies competing for market share. A goal-oriented approach to personal performance is still a competitive approach, but competition is a means to achieve self-improvement. This mentality is closer to continuous improvement, in which livestock seeks to be better at what it does. A livestock enterprise can have a competitive orientation without giving up the bottom line by pursuing excellence in its interests and not defeating other companies (Brown, Boykin & Sacco, 2022). Crick and Crick (2022) found competition orientation as one of Kenya's determinants of livestock development. Vaughan and Madigan (2021) approached a qualitative study to investigate the role of competition orientation toward livestock development in South Africa. The findings emphasized that the entrepreneurs' fierce competition orientation would positively affect livestock development. However, only 45% of the paved roads are in good condition. Despite being crossed by national trunk roads, in Kazakhstan, there is no adequate integration of the municipalities away from the main road axes. The imbalance between rural areas and the main municipal capitals is accentuated by the inadequate provision of basic infrastructure (energy, aqueduct, sewerage and telephony). Information ceasing to flow between the private and public sectors is scarce (Sam, Jack & Ng, 2021). If this information flow were more effective, business decisions could be much more effective, according to their reality, and beneficial to all stakeholders. While on the other hand, if the information between the livestock and private sector flowed better, this would be an excellent step for the initiative, which is necessary to form clusters in the livestock industry.

H_2: There is a relationship between competition orientation and livestock development.

Production Orientation

Production orientation occurs when a livestock enterprise decides to start mass production so that the cost of production per unit is considerably reduced, all under the assumption that there is a market whose needs are not met by the existing supply (Factor & Goffman, 2022). Moseley (2022) found production orientation significantly impacted livestock development in Kazakhstan. As a result, there was a great unsatisfied demand; only those with excellent purchasing power could request large quantities of products manufactured in a short time, and

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on the other. A machine could do the work of up to 100 workers in less time, at less cost and could work 24 hours in a row (without overtime pay). Still, with new technology, the more the livestock enterprise buys, the less the livestock enterprise would have to pay. One would have to be crazy not to take advantage of a bargain of this type. Chen, Su, Wu and Zhou (2022) found orientation to production plays a significant role in developing livestock entrepreneurship in Kazakhstan. The production orientation has the assumption that consumers prefer products that are available and economically accessible. Therefore, management must focus on improving the efficiency and effectiveness of production and distribution. The production orientation is a stage in which the objectives and functions of the livestock enterprise focus on producing goods and services for mass consumption at economical prices. Okello and Luttah (2022) confirmed the impact of production orientation on the development of livestock entrepreneurship in India. Also, Ye et al., (2022) found that good livestock production works to expand the development of the livestock sector in Kazakhstan. These are rules applied during the livestock production process so that the livestock company is environmentally, economically and socially sustainable and, in this way, obtains healthy, safe and good quality products. Good livestock practices are applicable throughout the bovine production chain: from the producer or primary link, followed by the transformer until it reaches the final consumer. These standards apply to livestock production types: dairy, beef cattle and dual purpose. The implementation of good livestock practices requires dedication, which will later be reflected in numerous advantages for both the producer and the final consumer of their products: Obtaining products that are healthy and safe, free of biological and chemical contaminants, access to national markets and international with better prices and opportunities, reducing the chain of intermediaries (Do, Nguyen & Grote, 2022). Records management provides the producer with better knowledge about his company's economic and financial behaviour, allowing him to make timely and appropriate administrative decisions.

H_3: There is a relationship between production orientation and livestock development.

Financing

Livestock enterprise has as its main characteristic being operated or created by an entrepreneur due to factors such as unemployment, generation of higher incomes, knowledge of the activity or professional development (Okyere & Usman, 2021). The above shows the impulses that have made this sector the largest generator of jobs and income in the country. (Mugonya & Hauser, 2022). Buriak, Boiko & Demianenko (2021) found a lack of financing as one of the livestock development barriers. It is the technique of finance that aims to study and evaluate economic events in all operations carried out, and that serves to make decisions in the achievement of initial objectives. Another study by Abramova (2019) found financing determines the livestock development in entrepreneurship ventures in Kazakhstan. According to Wang, Zhong, Guo and Fu (2021), managing financial resources is essential and is thought to be a pivotal point in achieving objectives. These resources are among the most important within a livestock enterprise. Therefore, it is necessary to use them carefully to take advantage of them in the best way in the investments made in the entity. Currently, the business world has become a constant struggle due to globalization and technological advances. Therefore, it is

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now necessary to have more competitive companies that use financial administration as a determining tool and thus have the necessary monetary resources for the correct development in the operations carried out in the organization. Every livestock entrepreneur has to decide which path the enterprise should take. Decision-making is choosing between several alternatives, the best option. With this, the livestock entrepreneur can get more information; it also promotes the involvement of people within the enterprise by committing to decisions taken. Then if this situation happens on another occasion, the preceding mark becomes repetitive decision-making (Kantoroeva & Toktomamatova, 2021). Every decision lead to a degree of uncertainty and, therefore, a risk; when taking it. Hence, the livestock entrepreneur must assume these alternatives' risks and future aspects. That is why it is of the utmost importance that the necessary information is collected, in addition to using the tools available since the financial part is of the utmost importance in livestock enterprise because they demonstrate the behaviour that the company has had in the operations that have made (Mhitaryan, 2021). The stakeholder needs financial support to facilitate the livestock entrepreneur, which would help boost productivity and performance. Lastly, using financial tools to generate financial assistance tends to help make decisions that directly influence the financial structure of the livestock entrepreneurs' development.

H_4: There is a relationship between financing and livestock development.

Innovation

Innovation is the multi-stage process through which organisations transform ideas into improved products, services or processes to advance, compete and differentiate successfully in their market (Hilmiati, 2020). Improving efficiency in animal production will require new scientific approaches to technologies that are used, which can generate conflicts between new products or processes (Moseley, 2022). Vilkė and Gedminaitė-Raudonė (2020) described objective convenience as the new focus of innovation processes in animal production, seeking sustainability and human health. For the authors, technology will be directed in animal breeding and reproduction to exchange quantity for quality and sustainability; in animal nutrition from sufficient to optimum; in animal management systems that deal with uniformity of product and food processing with less focus on conservation and more on quality and sustainability. Ahmad, Ahmad and Rakhmat (2020) discussed the linear model of innovation in animal production, where universities and research centres focus their efforts on generating a process or product based on cooperation. However, the reality of the consumer market is creating a new governance model, where innovation demands mean that the inter-institutional cooperation networks have not been sufficiently agile to act in this scenario. Access to technological innovation is a competitive factor for animal production systems. In this sense, Olmstead (2020) developed and validated specific methodologies to assess the competitiveness of beef cattle on a farm. The method used farmers' questionnaires to analyse the competitiveness drivers and their respective factors. At the same time, they identified the threats and opportunities for internal competitiveness, leading to an index of competitiveness for the production systems. The results showed the extent to which raising the level of competitiveness of the systems increased the demand for technological innovation. The studies also identified

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flaws in the system of access and diffusion of new technologies. Moreover, individualism in sector agents also constitutes a barrier to access and introduction of new technologies. Hirniak (2021) found that the most significant difficulties in using technological innovations in milk production systems included a lack of training, information asymmetry, and the transfer of new information and processes. Understanding the signs of innovation to consumers and the information consumers expect from animal production systems may facilitate research for scientific advancement and greater integration with society (Istomin & Ivanov, 2021). Innovation would help the livestock industry creates a product with superior performance, quality and features that will attract customers.

H_5: There is a relationship between innovation and livestock development.

Mediating Effect of Innovation

In the perspective of Olmstead (2020), innovation refers to the changes in the process or the final product. Innovation is known in the business world; over the years, new concepts have been integrated, but it should be noted that it is a crucial success factor. It can be applied to different areas of the livestock enterprise, from the most common product to the human factor. Innovation has long been recognised as a vital contributor to companies' economic performance and survival (Hilmiati, 2020). For Istomin and Ivanov (2021), innovation is a potential resource that allows the entrepreneur to implement its decision-making, producer or trader to conquer the consumer and protect them from the competition.

Ezekwe, Machebe and Uzochukwu (2021) explain that innovation and the search for a source of profit are not yet exhausted, considering the processes of interaction, competition, production orientation and learning in the market and placing this social learning space in livestock development. Nurgalieva et al. (2021) found that innovation links significantly to livestock development in Kazakhstan with leadership ability, competition orientation, production orientation, financing and innovation. Innovation plays a vital role within the organisation, being a key factor guided to success, allowing market capture and the generation of competitiveness and production.

However, there are current theories about a leader's characteristics or profile. Moseley (2022) defined the components of the leader's emotional intelligence: self-awareness, self-control, empathy, and social skills to influence others. They suggest that university education is of great relevance for managers or people responsible for solving problems, given that it provides a better general ability to detect the appropriate knowledge, skills, and decision-making for the resolution of a problem or to initiate a process of search for leadership ability (Aiguzhinova, 2021). Vilkė and Gedminaitė-Raudonė (2020) found innovation as a booster for the development of livestock development, as it works to provide an innovative environment that encourages the adoption of new technology and adequate financial support to promote livestock development. The knowledge acquired has significance in facing the problems that arise; therefore, a manager must be a leader who allows his staff to grow to the extent that they feel proud and belong to the company.

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However, innovation in the human factor is associated with expectations, financial capability, competition, production orientations, financing and livestock improvement (Hirniak, 2021). It further influences uncertainty, whose difference is that the ability to solve the measures to develop new knowledge and experiences increases that, would create a positive impact on livestock development.

H_6: There is a mediating effect of innovation between leadership ability and livestock development.

H_7: There is a mediating effect of innovation between competition orientation and livestock development.

H_8: There is a mediating effect of innovation between production orientation and livestock development.

H_9: There is a mediating effect of innovation between financing and livestock development.

Conceptual Framework

The conceptual framework was supported by various theories and models relating to livestock development. Therefore, this framework focuses on the factors determining livestock development: the mediating effect of innovation in Kazakhstan to proffers solutions to the issues associated with leadership ability, competition orientation, production orientation, financing, innovation, and livestock development in Kazakhstan.

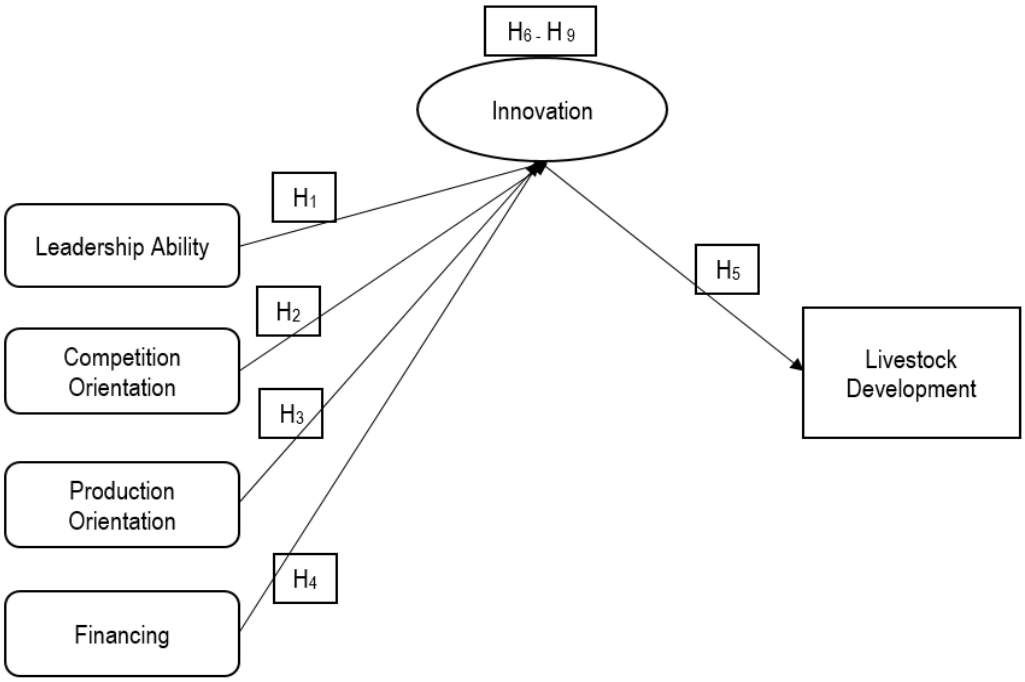

Figure 1: Conceptual Framework of the Study

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RESEARCH METHODOLOGY

Sample Size and Population Procedure

Descriptive and correlational designs were adopted to suit the quantitative research design and proffer solutions to the identified research questions in this study (Kothari, 2019). The researcher adopted simple random sampling in generating data from the respondents (farmers and livestock stakeholders) in Kazakhstan. The target population was supported by the statistical table obtained from Krejcie & Morgan in determining the sample size of this study (Krejcie & Morgan, 1970).

However, the challenges surrounding livestock development trigger the root cause of this study to harness its target population among different respondents. This study generates its data from the questionnaire, which consists of various sections. Section A focuses on the demographic data, which entailed the respondents' age, gender, marital status, income, and education level. Section B focuses on the level of livestock development, leadership ability, competition orientation, production orientation, financing and innovation based on five (5) interval scales (Jacqueline, 2013; Bryman & Bell, 2018; Ekinci, 2020).

Before embarking on the pilot study, an expert review was conducted to validate the items of each construct to derive the desirable solutions for promoting livestock development in Kazakhstan. Upon a successful expert validation, a pilot study was conducted, which proved that the constructs are 0.7 and above (0.829 to 0.905) and affirmed has met the acceptance criteria (Litwin, 2014).

The field study was conducted with the aid self-administered survey (face-to-face) with the respondents, which further enhanced the adequate communication and interaction of their views on the root cause of this study (Mark & Adrian, 2019). Out of 430 questionnaires distributed to the target farmers and livestock stakeholders, the researcher received 388 questionnaires from the respondents as the sample size, giving a success and response rate of 90.23%.

Measurements of Constructs

Table 1: Measurement of Constructs

Constructs	Cronbach Alpha	Source of Adopted Items
Livestock Development	0.857	Pica-Ciamarra, Tasciotti, Otte and Zezza (2011)
Innovation	0.823	Moulik (1965).
Leadership Ability	0.871	Nandapurkar (1982).
Competition Orientation	0.905	Singh (1981).
Production Orientation	0.843	Supe (1969).
Financing	0.829	Kumar (2016).

Data Analysis

Upon successful data collection from the field study, the researcher adopted the Statistical Package for Social Science (SPSS) (version 28) and SmartPLS (PLS-SEM) to analyse the factors determining the development of livestock: the mediating effect of innovation in

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Kazakhstan (Mark & Adrian, 2019; Sarstedt, Ringle & Hair, 2017).

Firstly, descriptive testing was employed with the aid of SPSS to determine the respondents' profile views on livestock development. Secondly, convergent validity and reliability analysis was conducted to ascertain the constructs' reliability, composite reliability, average variance extracted and variance inflation factors. The discriminant validity was conducted to examine the relationship between the constructs (Shiau, Sarstedt & Hair, 2019).

Thirdly, the structural model and path coefficient was analysed among the direct effects, which further leads to the analyses of the mediation testing. These analyses were sufficient in deriving the solutions for livestock development in Kazakhstan with the aid of leadership ability, competition orientation, production orientation, financing, and innovation.

RESULTS

Demographic Analysis

Table 1 indicated that most of the respondents were males totalling 332 respondents (85.6%), and female respondents 56 (14.4%), as presented in Table 2. It further affirmed that female participation in Kazakhstan's livestock industry than female entrepreneurs. Out of 388 respondents, a total of 187 or 48.2% belonged to the 38-47-year-old age group as shown in Table 2, followed by the 28-37 years age group (27.3%), 48 years old and above obtained 17.3% respectively. In addition, the highest participant age in this study ranged from the 38-47 age group. The salary of the respondents indicates that 52.8% is the highest salary earned, which falls within the USD 501 and USD 1000 salaries. On the other hand, 90 respondents earned 23.2% and reported earnings below USD 500; a mere 16 earned 4.1% above USD 1500. Education is essential to promote livestock development in Kazakhstan (Malyarenko & Kushebina, 2022).

Out of 388 respondents, 271 (69.8%) has the highest participation rate, which falls in the degree level of education. A diploma certificate followed this with 59 respondents (15.2%), which affirmed that Kazakhstan values education and has promoted their development in livestock and yielded high dividends for the country. Lastly, work experience is essential in developing continuous livestock growth in Kazakhstan (Seitov, 2022). Based on this study, 10 to 14 years (36.3%) of experience has the highest participation rate as they believe that livestock development will benefit the farmers and stakeholders and would result in the country's economic growth. However, higher work experience is identified to have participated in this study.

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Table 2: Respondents Profile

Items	Frequency (n = 388)	Percentage (%)	Items	Frequency (n = 388)	Percentage (%)
Age Group			**Education**		
18 – 27 years old	28	7.2	High School	7	1.8
28 – 37 years old	106	27.3	Diploma	59	15.2
38 – 47 years old	187	48.2	Degree	271	69.8
48 years old and above	67	17.3	Master	8	2.1
Gender			Doctorate	8	2.1
Male	56	14.4	**Work Experiences**		
Female	332	85.6	Less than 1 Year	16	4.1
Salary			2 to 5 Years	68	17.5
Upto 500 USD	90	23.2	6 to 9 Years	89	22.9
Between 501–1,000 USD	205	52.8	10 to 14 Years	141	36.3
Between 1,001–1,500 USD	77	19.8	15 Years and Above	74	19.1
Above 1501 USD	16	4.1			

Reliability & VIF Analysis

Reliability is the consistency of a particular measurement or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects (Kumar, 2014). SmartPLS 3.0 was used to examine the internal consistency, validate the test instrument and confirm its reliability (Hair, Sarstedt, Ringle & Mena, 2012). The researcher measured the instrument by implementing Cronbach's Alpha through the Smart PLS 3.0 model to achieve the reliability of the instrument employed in this research. The convergent validity and reliability of the measurement model were based on the assessment of indicators' reliability (e.g., standardized indicator loadings of 0.70; in exploratory studies, loadings of 0.40 are acceptable). The internal consistency reliability (Cronbach's alpha and composite reliability - both measures should exceed 0.70); convergent validity (AVE $\geq$ 0.50); and discriminant validity (cross-loadings) as recommended by Hayes, Montoya and Rockwood (2017). As denoted in Table 3, Cronbach's Alpha values for Leadership Ability, Competition Orientation, Production Orientation, Financing, Innovation, and livestock- entrepreneurship development were all found to be more than 0.8 and which proved that they are more than 0.7, reliable and has met the criteria requirements (Hair, Page & Brunsveld, 2019). Internal consistency of the measurement model is further acceptable as Dillon-Goldstein's rho (D.G. rho) ranged from 0.852 to 0.908, which proves that all the items are above 0.70 and indicate adequate reliability of the items used. According to Rea and Parker (2014), multicollinearity refers to the state of a strong association between the dependent variables. Therefore, the correlation values of any study should be less than the suggested value of < 0.80 (Sekaran & Bougie, 2016). Thus, any correlation values that surpass 0.850 are called multicollinear. There are two common metrics for measuring multicollinearity: the value of tolerance (R2) and the value of the variance inflation factor (VIF). The suggested tolerance value is 0.05 and for VIF is 5. In addition, using the correlation matrix between the two variables, the correlation value between each of the two variables should be less than .850 (Bryman, Bell, & Harley, 2019). As observed in Table 3, the VIF values for the constructs are below 3.2, indicating a lack of multicollinearity issues across

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the dataset of this study (Mukesh, Salim & Ramayah, 2020). The average variance extracted (AVE) value for the constructs is more than 0.50, proving sufficient convergent validity in this study (Hair, Page & Brunsveld, 2019). Furthermore, the results revealed that they ranged from 0.554 to 0.710, above 0.500, as required by the acceptance criteria and to validate the construct employed.

Table 3: Convergent Validity and Reliability Analysis

Variable	Items	Cronbach's Alpha	DG rho	Composite Reliability	Average Variance Extracted (AVE)	Variance inflation factor (VIF)
Leadership Ability	6	0.847	0.852	0.887	0.567	2.129
Competition Orientation	7	0.863	0.880	0.895	0.554	2.496
Production Orientation	7	0.894	0.900	0.917	0.612	3.151
Financing	6	0.917	0.988	0.932	0.695	1.613
Innovation	10	0.931	0.933	0.942	0.619	1.000
Livestock Development	5	0.899	0.908	0.925	0.710	–

Fornell-Larcker Criterion

The Fornell-Larcker assesses the discriminant validity for the all the construct in this study (Fornell & Larcker, 1981). Therefore, the Fornell-Larcker criterion in Table 4 cannot detect any lack of discriminant validity.

Table 4: Discriminant Validity

Variable	Leadership Ability	Competition Orientation	Production Orientation	Financing	Innovation	Livestock Development
Leadership Ability	0.753					
Competition Orientation	0.598	0.744				
Production Orientation	0.721	0.745	0.782			
Financing	-0.465	-0.584	-0.562	0.834		
Innovation	0.706	0.385	0.715	-0.293	0.787	
Livestock Development	0.559	0.708	0.661	-0.508	0.369	0.843

Structural Model

Based on the second and final stage of the PLS-SEM approach, the structural model helps to evaluate the path model for the study as established by a series of structural equations (Sarstedt, Ringle & Hair, 2017). Furthermore, as detailed below, it helps to represent the study's research model by proving the path relationship among the exogenous (independent) and endogenous (dependent) latent variables.

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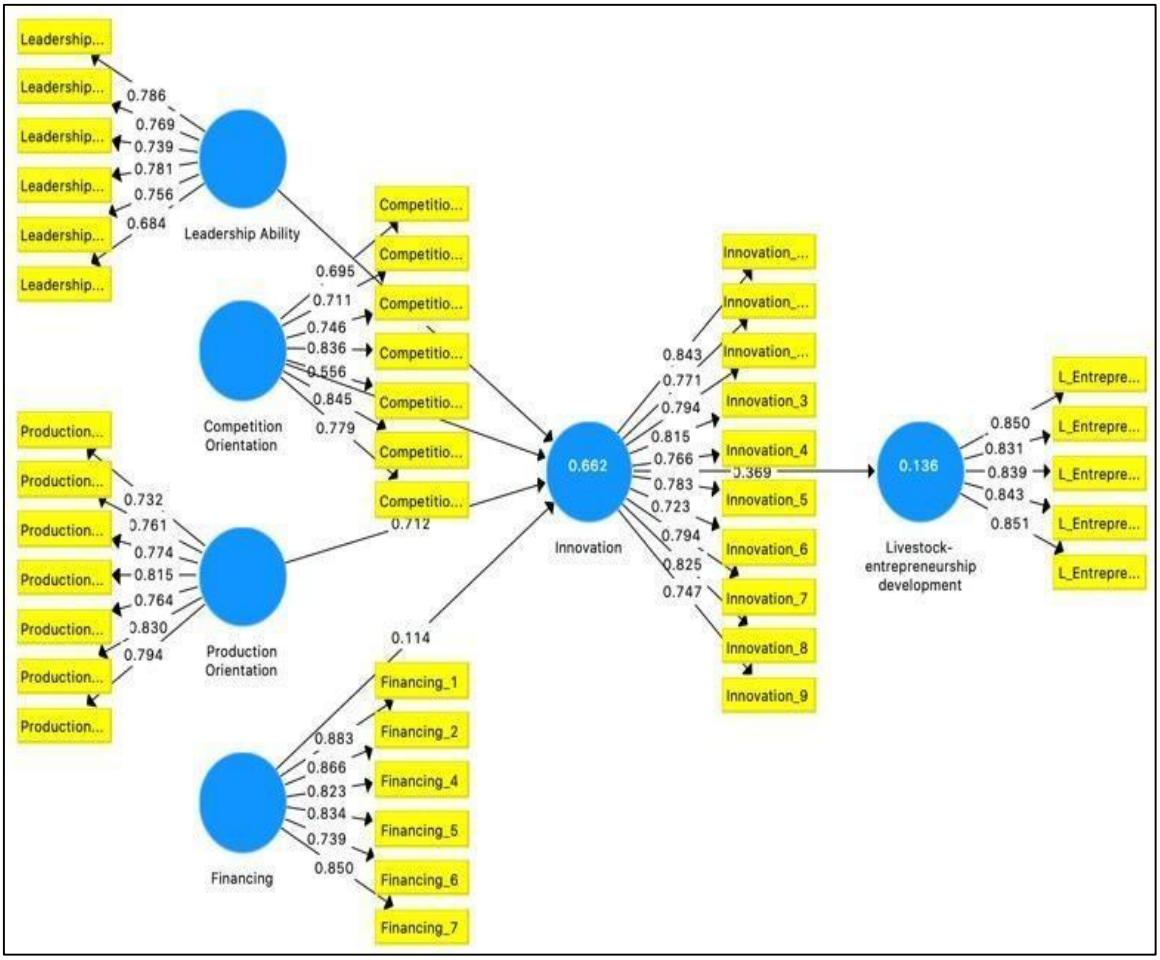

Figure 2: Structural Model

Path Coefficients

Path coefficients refer to the estimation promoted as path relationships in the structural model between the constructs (Dijukstra & Henseler, 2015). However, the regression coefficient (β) has helped to examine the path relationships (Zikmund, Barry, Jon & Mitch, 2020). In addition, the significance of regression coefficient β is based on the t-value generated with the SmartPLS bootstrap process. Firstly, the path coefficients of leadership ability showed a positive and statistically significant (β=0.455, t=8.206, p= 0.000) effect on innovation (at the chosen 5% significance level). This finding supports the hypothesis that H1 indicates that leadership ability positively induces innovation. On the other hand, competition orientation has a negative and statistically significant effect on innovation (β= -0.351, t=6.268, p= 0.000). This finding supports the hypothesis, H2 conveying that innovation influences competition orientation significantly. However, the negative sign ahead of the beta coefficient translates that such an effect would be inverse. As for production orientation, Table 5 displays a positive and statistically significant effect on innovation (at the chosen 5% significance level) (β=0.712,

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t=11.627, p= 0.000). The finding supports the hypothesis, H3, indicating that production orientation is an essential determinant of innovation. Table 5 further depicted that financing has a positive and statistically significant effect on innovation (β=0.114, t=2.689, p= 0.004), thus confirming a hypothesis, H4. Finally, innovation exhibits a positive and statistically significant effect on livestock development (β=0.369, t=5.629, p=0.000). This finding supports the hypothesis, H5 proving that innovative technologies facilitate superior corporate, social and environmentally sustainable livestock development.

Table 5: Path Coefficient

Hypo	Path	Beta (β)	t-value	CI-Min	CI-Max	*p*-value	Decision	*f2*
H1	LA □ IN	0.455	8.206	0.361	0.546	0.000	Supported	0.289
H2	CO □ IN	-0.351	6.268	-0.439	-0.253	0.000	Supported	0.146
H3	PO □ IN	0.712	11.627	0.606	0.807	0.000	Supported	0.477
H4	FI □ IN	0.114	2.689	0.038	0.176	0.004	Supported	0.024
H5	IN □ LD	0.369	5.629	0.256	0.479	0.000	Supported	0.158

Notes: LA: leadership ability; LD: livestock development; IN: innovation; CO: competition orientation;

PO: production orientation; FI: financing

Mediation Test

When there is a mediator research model in this study, it is appropriate and essential to perform mediation tests to analyse where a variable intervened between the predictor and outcome variables, reflecting certain indirect effects. However, the adoption of a mediator has helped to be anchored by a criterion variable. Therefore, it is assumed that it would help to determine the significant variance of the outcome variable (Venkatraman, 1989). Furthermore, innovation has been utilised to mediate the relationship between leadership ability, competition orientation, production orientation, financing and livestock development. Therefore, the mediation test is essential in providing the desired results. The mediation test results indicated that innovation has a mediating effect on the relationship between leadership ability and livestock development. It further affirmed that the indirect effect of leadership ability on livestock development is statistically significant (p-value < 0.05). This finding support hypothesis, H6, indicating a significant mediation of innovation on the relationship between leadership ability and livestock development. Similarly, supporting hypotheses, H7, the significant (p-value < 0.05) indirect effect of competition orientation on livestock development confirms the significant mediating effect of innovation on the relationships between competition orientation and livestock development across the study sample. As for production orientation, the corresponding p-value (p-value > 0.05) indicates that innovation significantly mediates the effect of production orientation on livestock development, hence supporting hypotheses H8. Finally, supporting H9, the significant (p-value < 0.05) indirect effect of financing on livestock development confirms the significant mediating effect of innovation on the relationship between financing and livestock development across the present study sample.

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Table 6: Mediating Effect

Hypo		Beta	t-value	CI-Min	CI-Max	Sig.	Decision
H6	LA□IN□LD	0.168	5.073	0.113	0.223	0.000	Mediation
H7	CO□IN□LD	-0.130	5.544	-0.165	-0.087	0.000	Mediation
H8	PO□IN□LD	0.263	4.751	0.172	0.352	0.000	Mediation
H9	FI□ IN□LD	0.042	2.527	0.014	0.069	0.006	Mediation

Notes: LA: leadership ability; LD: livestock development; IN: innovation; CO: competition orientation;

PO: production orientation; FI: financing

DISCUSSION

The result of this study has confirmed the importance of leadership ability because the role of leadership is to plan, organise, lead and control all the tasks, including leadership tasks such as motivating and inspiring. The result confirmed that livestock development needs leaders who will guide other people directly to attain common goals by establishing responsibility skills and being able to take risks. The findings of this study affirmed that leaders must support innovation and take a new approach to leadership that would help promote livestock development in Kazakhstan. Livestock development is highly competitive either in the market (livestock enterprise) or the livestock enterprise (competitive human factor) (Simão & Silveira, 2021). Therefore, the leader should have all the means to capture the opportunities or challenges he has to innovate. It further helps to change the organisational culture and helps to generate satisfaction for the human factor to be partakers of a change for a positive benefit (Dayat & Anwarudin, 2020). It helps the leader to implement strategies with attitudes and behaviours where he even seeks to reduce uncertainties and thus negotiate fully with the organisation's members. The impact on the profitability of competitive and production orientation may seem contrary to intuition, especially with so much corporate strategy literature that describes the art of leadership as something analogous to war. A contestant-oriented victory only cares about the other's defeat by any means necessary. A goal-oriented approach to personal performance is still a competitive approach, but competition is a means to achieve self-improvement on a particular production. This mentality is closer to continuous improvement, in which livestock seeks to be better at what it does. In pursuing excellence in their interests and not defeating other companies, a livestock enterprise can have a competitive and production orientation without giving up the bottom line. Konuspayev et al., (2021) used a qualitative study to investigate the role of competition and production orientation toward livestock development in Kazakhstan. The findings emphasised that fierce competition and production orientation by the entrepreneurs would positively affect livestock development. However, only 45% of the paved roads are in good condition. Despite being crossed by national trunk roads, in Kazakhstan, there is no adequate integration of the municipalities away from the main road axes (Kazhieva, 2021). The imbalance between rural areas and the main municipal capitals is accentuated by the inadequate provision of basic infrastructure (energy, aqueduct, sewerage and telephony). Other studies stated that rural area in Kazakhstan is not one of the most developed in the

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country. However, in this study, it confirmed that the improvement of competition and production orientation will benefits the livestock development, if well exploited, can lead to greater economic production development and competitiveness (Sabirova et al., 2020; Suleimanov, 2021). These benefits are as follows road infrastructure since they have significant essential roads and a good river system that can be exploited to connect better with nearby areas. On the other hand, with beef cattle farming, particularly in cow-calf systems, scientific progress and technology are developed in universities and research centres (Lagodiienko, 2019). This knowledge has a long road to travel to reach the end-user and is usually associated with the processes. Moreover, when employed promptly and used at a point in the production chain, the knowledge cannot substantially change the outcome of the process because it depends on many other factors (Ameer & Khan, 2020). If these are not managed systemically, they can neutralise the benefits of the knowledge technology introduced. It is also difficult for a business to buy technology and convert it into input. Therefore, those who innovated have little marketing ability to sell it through the lack of standardised, systematic distribution and predictability of results.

The lack of financing that the livestock development has, since heading to diversify, and creating a new industry or business, will require large amounts of financing (Huang, 2021). Apart from that, finances also play an essential role in enhancing the development of the livestock industry. Compared with the large industry, the livestock industry invests less in innovative technology and use less sophisticated technical equipment. Difficulty in accessing finance is the main barrier to adopting technological innovation. However, the livestock industry can access financing from banks and financial institutions investing in innovation. Many owners are characterised by becoming a natural person, although half do so as a legal entity. The average of its annual sales is 35 thousand dollars, and its main challenge is expansion (Lemishko, 2021). For this reason, it is emphasised that livestock enterprise in Kazakhstan represents a very large economic value for the country and therefore is the main driver of it. Previous studies found that lack of financing is one of the livestock development barriers. It is the technique of finance that aims to study and evaluate economic events in all operations carried out, and that serves to make decisions in the achievement of initial objectives. Other studies found that managing financial resources is essential and thought to be a critical point in achieving objectives. These resources are among the most important within a livestock enterprise. Therefore, it is now necessary to have more competitive companies that use financial administration as a determining tool and thus have the necessary monetary resources for the correct development in the operations carried out in the organisation (Khadka & Thapa, 2020). Based on the finding, innovation has a positive and significant effect on livestock development. Livestock innovation is often promoted as a package of technologies, which are released to the farmers for adoption to improve the productivity of their livestock enterprises (Celestin, 2021). The study confirmed that the innovation is helping farmers access information that can help them make an important decision out on the farm and help the consumers access information when making a purchase. Thus, there is power in having real-time information. The attitude and perspectives of the several stakeholders (sometimes entrepreneurship is seen as something distant from others and that can disturb the status quo)

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are determinants for effective farming entrepreneurship, and benchmarking may play an interesting role here. It further allows farmers to see other realities where entrepreneurial practices are successfully implemented. Omarov, Kalykov, Niyazbekova and Yessirkepova (2021) found that innovation links significantly to the development of livestock in Kazakhstan. Innovation plays a vital role within the organisation, being a key factor guided to success, allowing market capture and the generation of competitiveness and production (Ahmad, Ahmad & Rakhmat, 2020). However, the positive and significant indirect effect of leadership ability, competition orientation, production orientation, and financing on livestock development. It further indicates that innovation significantly mediates the relationship between leadership ability, competition orientation, production orientation, financing, and livestock development. In terms of novelty, this study is known to be the first to measure the mediating effect of innovation on livestock development on the disaggregated leadership ability, competition orientation, production orientation and financing. Thus, this study expanded the existing literature and provided fascinating new insight, particularly in the Kazakhstan context, by elucidating the pivotal roles of innovation as an enabler of livestock development, contingent on the leadership ability, competition orientation, production orientation and financing among the livestock entrepreneurship in Kazakhstan.

CONCLUSION

The concluding finding of this study has successfully achieved its objectives by developing a framework connecting leadership ability, competition orientation, production orientation, financing, innovation, and livestock development. Various theories and models were deployed to provide desirable solutions to this study, which have significantly yielded a positive impact on promoting livestock development in Kazakhstan. In addition, the five forces model, contingency theory, technology acceptance model and diffusion of innovation theory have been supported and validated by data and robust statistical analyses. This study affirmed that leadership ability helps promote leadership skills and knowledge in making the right decision that promotes livestock development. It further agreed that skills help to facilitate the effective decision-making process and inversely produced a significant positive impact on developing livestock in Kazakhstan. The study confirmed that competition and production orientations play essential roles in promoting livestock development in Kazakhstan, which has proved successful as they have yielded a significant relationship between competition orientation, production orientation and livestock development. Financing has yielded a positive impact on creating an edge for livestock development for its stakeholders, which has significantly impacted the development of livestock in Kazakhstan. Lack of financial support reduces the stakeholders' capacity to strategies effectively to innovate their production. It would further help to create an added value in competition among rivalry and helps to improve the sustainability of livestock development. Based on the concluding findings in this study, financing has a positive and significant impact on promoting livestock development in Kazakhstan. It further agreed that the success of promoting livestock lies in the financial capability of the stakeholder to boost their production and improve its development effectively. The adoption of innovation as a mediating effect has yielded a positive and significant effect

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on leadership ability, competition orientation, production orientation, financing and livestock development. Innovation has proved significant as it has helped to increase the capability of leadership in asserting right decision-making, leading in its competition orientation, advancing the production with the latest innovation technology and acquiring the necessary financing to support livestock development effectively. In general, this study sheds light on the complex relationship and presents certain concepts of interest relating to this study. Despite the reported limitations, the findings of this study provided a concluding detailed account and empirical evidence of leadership ability, competition orientation, production orientation, financing availability, and innovation in livestock development, which was significant and positive. In addition, it is expected that the study would support policymakers, organisations, managers, researchers, and other parties interested in exploring in-depth studies relating to livestock development, which would further help to continuously promote the factors determining the development of livestock in Kazakhstan.

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