Towards The Development of a Poultry Sector Management Decision Model for Limpopo Province of South Africa

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Abstract

The study investigated poultry sector challenges in Limpopo Province of South Africa and using Congruence Model, proposed development of management decision model.Challenges entailed lacks of(a) vaccination, (b) production skills, (c) extension, and (d) production input. Mean congruence for challenge and strategy was moderate (rating=2.00) resulting from high congruence (ratings=3.0) for challenges (a)-(b) and low for (c)-(d). Mean congruence for strategies and tasks was moderate-high (rating=2.50) resulting from high congruence (ratings=3.0) for (a)-(b) and moderate (ratings=2.0) for (c)-(d)components. For allocation and filling of posts, mean congruence was high (rating=2.58) resulting from ratings (2.9, 2.6, 2.6) for (a), (c) and (d) components and moderate for (b). High mean congruence (rating=2.75) also occurred for allocation and spending of budget resulting from high congruence (ratings=3.0) for (a)-(c) and moderate (rating=2.0) for (d) component. Themanagement decision model should address areas of low and those of moderate congruence using commodity based approach focusing on poultry.

Key Words: Congruence, poultry, vaccination, production skills, extension, production input, decision model

1. Introduction, Congruence Model

Several researchers indicated challenges experienced by poultry farmers in Africa and the most prominent challenges identified were lack of (1) vaccination program, (2) production skills, (3) extension support, and (4) production inputs (Alders *et al.*, 1997). In order to successfully address the challenges experienced by the poultry farmers, an appropriate management decision model is required that takes into account the relevant capacity of service organizations. In order to be relevant, such a model should ensure congruence between the sector challenges and the capacity of service organizations. The Congruence Model (Nadler and Tushman, 1980) was therefore identified as a basis for development of the management decision model for the poultrysector.

The Congruence Model views organizations as made up of components that interact with each other (Figure 1). The components are categorized as **inputs** that include environment, resources, history and strategy; **transformation** that is influenced by tasks, human resources, financial resources and formal and informal organizational arrangements; and **outputs** that may be organizational, group or individual (Nadler and Tushman, 1980; Gill, 2000;Bezboruah, 2008; and Mertikas, 2008). The model provides for the flow of information and / or action from a source component to a recipient component and this information and / or action may be subjected to congruence rating to assess the degree of fit (Figure 1). The congruence between two components is defined as the degree to which the needs, demands, goals, objectives, and structures of one component satisfy those of the other (Nadler and Tushman, 1980). The concept 'congruence' may be understood through illustration of the fit between units (1) across components and (2) those within components (Tshikolomo *et al.*, 2013).The main challenges experienced by poultry farmers were lack of (1) vaccination program, (2) production skills, (3) extension support, and (4) production inputs (Alders *et al.*, 1997) and are all human (person) related.

Understanding of the concept 'congruence' in this study therefore focused on the fit between a person and the other components as described by Nadler and Tushman (1980). In this case, 'congruence' was illustrated for person-environment and person-organization fit in recognition of the importance of environment (under input) and service organization (transformation) in the model. Individual job performance is important for good performance of the poultry sector and hence person-job (P-J) fit was also used to illustrate the concept 'congruence'. The concept 'person-environment (P-E) fit' refers to similarity between a particular set of person-related attributes and a set of environment-related attributes (Schneider *et al.,* 1992). It was indicated by Ostroff (1993) that organizationsare more effective when the attributes of a person and those of environment fit or are highly congruent. The P-E fit was positively related tosuch issues as job satisfactionand career success (Bretz and Judge, 1994). A high degree of congruence between the unit of *environment* under input and that of *person* in service organization (transformation) results in a more effective service organization. Similarly, high degrees of fit between pairs of other units across the two components of environment and transformation in poultry service organizations will make the organization to be more effective.

The concept of 'person-organization (P-O) fit' was described as a fit between individual and organizational characteristics (Kristof, 1996). Organizational characteristics include such aspects as culture which informs people about the way things are done in the organization (Balkin and Schjoedt, 2012). Some organizational cultures are rigid and do not provide for employees to make independent decisions while others are flexible and allows the employees to make decisions. Self-motivated employees would want to decide on their own goals, work schedules, methods of work and outputs (Sparrow and Daniels, 1999) and would therefore fit in flexible work situation (Jarvenpaa and Leidner, 1999). The organizations that offer a flexible work situation are often multicultural (Jarvenpaa and Leidner, 1999) and are therefore able to accommodate employees from different cultural backgrounds. The attainment of P-O fit is very necessary for poultry sector service organization to be effective.

The concept of 'person-job (P-J) fit' refers to the degree of congruence between individual characteristics and job requirements (Edwards, 1991). The P-J fit commonly lacks where employees lack the competence that is critically required by the job. In situations where employees do not have the required competence for their jobs, attainment of P-J fit will require that the organizations invest in reskilling interventions such as human resource development (Tshikolomo *et al.,* 2013).The purpose of this study was to (1) highlight the challenges faced by the poultry sector in the study area, (2) analyse the degree of congruence between the challenges and the capacity of the major service organization as reflected by strategies, tasks, and allocation and use of resources, and (3) to subsequently describe the issues of focus for developing a poultry sector management decision model. The Congruence Model was useful in analyzing varying situations, reduced the complexity of organizational dynamics to manageable proportions, and helped leaders to predict important patterns of organizational behavior and performance (Wyman, 2003). The Congruence Model of Nadler and Tushman (1980)wastherefore used to analyze the degree of fit among the specified components and to subsequently identify the issues of focus for developing the management decision model.

2.Research methodology

2.1 Study area

The study was conducted in the Limpopo Province of South Africa and covered all the five districts and their local municipalities. The Province is located in the north most part of South Africa and it forms borders with Botswana in the north-west, Zimbabwe in the north, and Mozambique in the east. Within South Africa the province forms borders with Mpumalanga Province in the south-east, Gauteng in the south and the North-West Province in the south-west.Limpopo Province has poultry farmers involved with broilers, layers and those involved with both broilers and layers (Figure 2).It is evident that Mopani, Vhembe and Capricorn District Municipalities are the ones with high concentrations of poultry houses. It must be noted however, that only high technology infrastructure was captured with little emphasis on the small holder poultry structures and the family or household indigenous chicken farming.

2.2 Sampling procedure

Purposive sampling was used to select the poultry sector service organization to be evaluated for development of a management decision model within the framework of the Congruence Model. The Limpopo Department of Agriculture (LDA) was selected as it is the custodian of agriculture services in the Province.

Also, household chicken farmers in villages in the MukulaChieftain Area located in Thulamela Municipality of Vhembe District were purposively sampled for detailed investigation as the village was nearer to the place of residence of the researcher and was therefore easily accessible.

2.3 Data collection and analysis

Information on major challenges affecting the poultry sector in the study area was obtained from relevant literature studied to provide insight on the type and magnitude of the challenges. The study of literature was followed by interviews of indigenous poultry farmers of selected villages in MukulaChieftain Area to confirm the applicability of the challenges in the study area. Data on capacity of the sampled LDA to address the challenges was obtained from the strategic and annual performance plan, organizational structure, staff placement and annual reports of the organization (LDA, 2010; LDA, 2011).

The allocation of human resources was mainly based on professional disciplines and not on commodity to be serviced while the commodity based approach would be necessary. The assumption in this study was that Animal Scientists, Animal Production Technicians and Animal Health Technicians were competent to service the poultry sector. A fair amount of information with some degree of convergence on issues covered was obtained for the 2010-11 financial year and hence analysis was based on this year. Information was also obtained from other relevant literature.In order to ensure relevance and consistence in the type of information collected, the major challenges experienced by the poultry sector were highlighted. The statements in the plans of the service organization that proposed solutions to the sector problems were noted and used to assess the congruence between the capacity of the organization and the poultry sector challenge. The congruence analysis was based on the plans and reports of the LDA and hence estimates the prospects for the Department to successfully address the poultry sector challenges.

Although the information was mainly qualitative, some quantitative data was used and that included data on the amount of resources allocated and those utilized by the organization. The plans and reports of the LDA did not always reflect the exact financial resources allocated and used for the specific tasks and therefore financial resources were estimated by the goods and services budget of relevant programs where necessary. Based on quantitative data, objective rating of congruence between allocated and utilized human and financial resources was conducted. The qualitative information on different aspects of organizational capacity was properly summarized, organized and subjectively rated for congruence with the poultry sector challenges (Leedy and Ormrod, 2010).

Arbitrary numerical scores were decided upon and used for the rating of the degree of congruence between aspects of capacity of the LDA and the sector challenges. The scores were in a scale of 0-3 where 0 indicated no congruence, 1 indicated low, 2 indicated moderate and 3 indicated a high degree of congruence (Tshikolomo *et al.,* 2013). This type of research where both quantitative and qualitative data is collected and analyzed is described as a mixed study (Hurmerinta-Peltomaki and Nummela, 2006). The congruence scores were accordingly interpreted in the context of determining the prospects for the LDA to successfully address sector challenges. As stated by Tshikolomo *et al.* (2013), higher congruence scores for both quantitative and qualitative aspects suggested a higher degree of fit between the poultry sector challenge and the capacity of the LDA to address it and *vice versa.*

3. Results and discussions

3.1Major challenges faced by the poultry sector

The challenges faced by the poultry sector were identified and the major ones include:

(a) Lack of vaccination program

Newcastle was described as a major disease that wiped out 85% of the poultry (Alders *et al.,* 1997; Moreki*et al.,* 1997; Mushi*et al*., 2000, Swatson*et al,* 2004).

Contrary to situations with countries such as Bangladesh, South Africa had no vaccination program put in place by government (Swatson*et al,* 2001). According to Swatson*et al.* (2004), farmers used indigenous knowledge to try and control outbreaks of diseases such as Newcastle.

(b) Lack of production skills

The lack of skills on poultry production was one of the constraints faced by poultry farmers (Swatson*et al,* 2004) and this was also an issue in villages in the Mukula Chieftain area.

(c) Lack of extension support

The lack of extension support was recorded for production, veterinary, marketing and economic aspects of poultry farming (Swatson*et al.,* 2004) and this has presented itself as a challenge to the poultry sector.

(d) Lack of production inputs

The lack of production inputs was noted as a challenge for the poultry sector. It was indicated that village chickens freely roam around homesteads and scavenge for food (Moreki*et al.,* 1997; Mushi*et al.,* 2000) in order to meet their feed needs.

3.2 Congruence between poultry sector challenges and organizational strategies and among componentsof capacity of LDA

The effectiveness of LDA as service organization in improving the performance of the poultry sector is influenced by the degree of congruence between the strategies of the organization and the challenges faced by the sector.

3.2.1 Congruence between poultry sector challenges and LDA strategies

The strategies used by LDA to improve the poultry sector were shown in the strategic planning document of the organization and those seek to address the major challenges faced by the sector (LDA, 2010). The extent to which the strategies are relevant to solving the poultry sector challenges is illustrated by the congruence analysis between the two factors. Although the strategies of LDA were presented in the form of outcomes, there was a high degree of congruence (rating=3) between the challenge of lack of vaccination and the responsive strategy presented as safe and tradable animals and animal products. A high degree of congruence (3) was also noted between the challenge of lack of production skills and the responsive strategy presented as skilled and empowered farming community (Table 1).

The strategy of the LDA presented as improved agricultural production was rather broad and did not address any of the challenges of poor extension support or lack of production inputs at a reasonable level of specificity. Improvement of agricultural production could refer to commodities other than poultry and, even within the poultry sector, improvement could be achieved through interventions different from extension support and provision of production inputs. There was therefore a low degree of congruence (1) between each of the two challenges and the responsive strategy presented as improved agricultural production. Although the LDA may not have clearly captured the issues of extension support and provision of production inputs, the two issues are included in the programs of the department. Improved extension support is provided for under a program referred to as Extension Recovery Plan (ERP) while provision of production inputs is through a program referred to as Production Input Support.

3.2.2 Transformation components and their congruence with strategies

According to the Congruence Model of Nadler and Tushman (1980), the transformation process for the poultry sector within LDA entails the use of inputs to produce a set of outputs. Important components influencing transformation within the Department include: (1) tasks (which could be in the form of performance indicators or projects), (2) human, and (3) financial resources (Nadler and Tushman, 1980; Gill, 2000; Ostroff, 1993; Wyman, 1998; Wyman, 2003). Congruence analysis of the transformation process assists in determining the extent to which the LDA is capable of addressing the sector challenges.

(a) Congruence between strategies and tasks

Tasks reflect the basic or inherent work to be performed by the LDA to address the challenges experienced by the poultry sector. Analysis of the congruence between strategies and tasks reveals the extent of relevance of the tasks in addressing the strategies set by the Department (Table 2).

A high degree of congruence (rating=3) was noted between the strategy presented as 'safe and tradable animals and animal products' and the task of controlling animal diseases (Table 2). Although there could be other tasks necessary for production of safe and tradable animals and animal products, the control of animal diseases is regarded the major task in the study area. The necessity of controlling animal diseases is critical because the Province co-hosts the Kruger National Park and therefore experiences outbreaks of diseases such as Foot and Mouth Disease (FMD). Also, the location of the Province in the periphery of South Africa makes it vulnerable to animal diseases from the neighboring countries (namely, Botswana, Zimbabwe and Mozambique). There was also a high degree of congruence (3) between the strategy 'skilled and empowered farming community' and the task of provision of formal and non-formal education.

The provision of the education is mainly through two Colleges of Agriculture that are under the LDA, namely: Madzivhandila and TompiSeleka College of Agriculture. In response to issues of post-1994 transformation of the education system in South Africa, the two colleges stopped some of their training programs and provided more focus to farmer training mainly through short courses and skills programs. Research indicates that there is indigenous knowledge and other technologies that may be used to increase poultry production and this needs to be explored and relevant target group trained on such innovations (Swatson*et al.,* 2001; Swatson*et al.*, 2004).Although the strategy 'improved agricultural production' may not be entirely addressed by the task of providing farmers with technical advice, the task is one of the important initiatives for achieving the strategy and therefore the degree of congruence between the two was regarded moderate (rating=2). Technical advice for the poultry sector is mainly provided by extension officers for production issues and animal health technicians for disease and pest management issues.

Other than provision of farmers with technical advice, achieving the strategy 'improved agricultural production' is influenced by the extent to which farmers are provided with production inputs. The degree of congruence between the strategy (improved agricultural production) and the task (providing farmers with production inputs) was also regarded moderate (rating=2) as the task may not alone result in the achievement of the strategy. Production inputs provided by LDA are mainly the poultry production stock (broilers, layers and indigenous chickens), feed and medicines, and these are supplied under Production Input Support Programme and are funded through a conditional grant referred to as Ilima-Letsema. It was observed that the tasks performed in this strategy are more skewed towards broilers and layers with little activity on indigenous chicken production (LDA, 2010).

(b) Congruence between allocated and utilized organizationalresources

With the congruence between strategies and tasks analyzed, it is necessary to assess the capacity of the LDA to implement the tasks. Lack of capacity to implement the tasks results in the LDA not being able to achieve its strategies for addressing the poultry sector challenges and hence the Department will fail to render its important services. The study assesses the capacity of the LDA through determining the degree of congruence between availability and use of requisite resources. According to Nadler and Tushman (1980), human and financial resources are important determinants of the capacity of an organization to successfully perform its tasks and achieve its strategies, and these resources were the focus of analysis.

(i) Congruence between allocation and use of human resources

The analysis of human resource allocation and utilization was based at a local municipality level because this is where services are rendered (Table 3).The types of personnel required for the poultry sector are: (1) animal health technicians to support the task on control of animal diseases and that on providing farmers with production inputs such as poultry vaccines and medications, (2) animal scientists to support the task on providing formal and non-formal agricultural education and that on providing farmers with technical advice, and (3) animal production technicians to support the task on providing farmers with technical advice and that on providing farmers with production inputs. Each type of personnel has mainly two tasks to support. A limited number of veterinary doctors were placed in the districts to support the animal health technicians and those were not included in the congruence analysis.

An average of about 2 (exactly 1.64) animal scientist posts were allocated per municipality with 1 (exactly 1.20) or 78.04% filled. The degree of congruence between the number of animal scientist posts allocated and those filled was moderate (rating=2.2) (Table 3). Relatively more posts were allocated for animal production technicians where an average of 3 posts was provided for a municipality. Of the allocated posts of animal production technicians, 88.12% were filled and this translated to a high degree of congruence (rating=2.64) between the allocation and filling of the posts.

As for animal health technicians, some seven posts were allocated for a municipality, more than twice the number of posts allocated for animal production technicians. Up to 93.32% of the posts allocated for animal health technicians were filled and this translated to a high degree of congruence (rating=2.9) between the number of posts allocated and those filled. The allocation and filling of more posts for animal health technicians suggests that the LDA regarded disease and pest management as priority in her services to the poultry sector.

Considering animal health technicians, it would be expected for municipalities lying along international borders and those next to the Kruger National Park to have more posts allocated and filled in order to provide for sufficient human resources to manage disease and pest outbreaks from the neighboring countries and those from the Kruger Park. These municipalities would include Lephalale, Blouberg, Musina, Mutale, Thulamela, Giyani and Phalaborwa. The allocation and filling of the animal health technicians does not seem to correlate with the geographic location of the municipalities (Table 3). A high degree of congruence (rating=2.57) was noted between the average number of posts allocated in municipalities for the three types of human resources (animal scientist, animal production technician and animal health technician) and those filled. Some municipalities had filled all the posts allocated for the three types of officers and had a high degree of congruence (rating=3) between the allocation and filling of posts. The municipalities that filled all the allocated posts were Letaba, Tzaneen, Fetakgomo, Makhuduthamaga, Thulamela and Belabela. The rest of the municipalities had some allocated posts not filled and the Blouberg Municipality had the lowest (would be described as moderate) degree of congruence (rating=1.67)between the total number of posts allocated and those filled. Considering the allocation of posts for servicing the poultry industry, it would be necessary for the LDA to assess the demands of the sector and review the allocation of the posts. Posts should be allocated in accordance with the needs for services and should all be filled.

(ii) Congruence between allocation and use of financial resources

The allocation and use of financial resources are important indicators of the capacity for the LDA to effectively perform the tasks for servicing the poultry sector. The congruence between LDA allocation and spending of financial resources for achievement of tasks to support the poultry sector was therefore considered (Table 4). The plans and reports of the LDA did not reflect the exact financial resources allocated and spent on the top three tasks (control of animal diseases; provide agricultural education; provide farmers with technical advice). The financial allocations, spending and subsequent congruence rating for these three tasks were estimated by the goods and services budget of relevant programs.

A budget of R11.18 million was allocated for the task on control of animal diseases and the whole (100.0%) of it was spent resulting in a high degree of congruence (rating=3) between budget allocation and expenditure (Table 4). The spending of the entire budget would probably have catered for diseases such as Newcastle that is highly contagious. The budget allocation for the task on provision of agricultural education was R15.56 million with 85.1% of it spent still resulting in a high degree of congruence (3) between the allocation and spending of financial resources. A similar congruence rating (3) was noted for the fit between budget allocation and expenditure for the task on providing farmers with technical advice. Assuming that the budgets were allocated according to the demands of the tasks, the high degree of congruence between the allocations and the expenditures suggest that the LDA had good capacity to achieve the tasks during the 2010-11 financial year.

As for the task on providing farmers with poultry production inputs, the budget allocation was R1.44 million and the expenditure was R1.808 million constituting 125.5% of the allocated budget. A moderate degree of congruence (rating=2) was noted between the budget allocation and spending on this task. The additional spending (25.5%) was probably funded from other allocations within the production input budget, e.g. pesticides. This result of congruence analysis suggest that there was no perfect fit between the allocation and spending of the budget, instead the budget was overspent. The overspending could have been a result of (1) the allocation having been inadequate in the first place, (2) new demands for poultry production inputs having being received after budgets were allocated, or (3) prices for the production inputs having been higher than the estimates used at planning.

3.3 Congruence flow analysis

The purpose of congruence flow analysis was to assess the variation in levels of congruence along the input and transformation components (Tshikolomo *et al.*, 2013). The congruence for LDA was moderate (2.00) for strategies (compared to challenges) and was high (2.50) for tasks (compared to strategies).

There was also a high degree of congruence (2.58) for allocation and filling of posts (human resources) and for allocation and spending of budgets (2.75) reflecting a good fit between the planning and use of resources to achieve the tasks (Table 5). These results suggest that strategy was the major constraint to successful implementation of poultry production in the study area. The moderate congruence rating for strategy was a result of its being broad and lack of focus on some of the sector challenges. For those areas where strategy was broad, focused activities were presented as tasks and this resulted in the high congruence rating for the tasks.

For the specific aspects of the components of the Congruence Model (Nadler and Tushman, 1980), a high degree of congruence was noted for the components linked to strategy on producing safe and tradable animals and animal products (2.98) and for the components linked to the strategy on skilled and empowered farming community (2.80). The degree of congruence was moderate for the components linked to strategy on improved agricultural production through providing farmers with both technical advice (2.15) and production inputs (1.90). These results suggest that the strategy on improved agricultural production was less achieved and was therefore a constraint to successful poultry production in the study area.

3.4Proposed focus of a poultry sector management decision model

In accordance with the results of congruence analysis, an appropriate poultry sector management decision model for Limpopo Province should focus on the components (and specific aspects of components) with relatively lower congruence rating. As informed by the congruence flow analysis (Table 5), the management decision model should address the following issues:

(a) Strategy

There was an overall moderate degree of congruence (rating=2.00) between strategies and challenges suggesting that the strategy could still be improved. The major constraint was with the strategy on improved agricultural production (congruence rating=1) which was rather broad and not specific on the highlighted sector challenges. The management decision model should present some focus on the need for specific strategies to address sector challenges.

(b) Tasks

There was overall a moderate to high degree of congruence (rating=2.50) between tasks and strategies. The constraints were with the tasks linked to the broad less focused strategy on improved agricultural production, namely: (i) provide farmers with technical advice (2.0) and (ii) provide farmers with production inputs (2.0). Although the tasks were relevant, they were not sufficient to achieve the strategy. Focused strategies would be adequately addressed by the mentioned tasks.

(c) Human Resources

In overall, there was a high degree of congruence (rating=2.58) between the number of posts allocated and those filled. Assuming that sufficient posts were allocated for the different types of personnel, the main constraint to achievement of the tasks would be on the availability of animal scientists as only 78.0% of the posts were filled (mean rating=2.2). The sector management decision model should provide a focus on the need for posts to be filled, especially those for animal scientists.

(d) Financial Resources

A high degree of congruence (rating=2.75) was noted between the allocation and expenditure of financial resources. The constraints were with the strategy on skilled and empowered farming community with only 85.1% of the budget spent. This was the strategy with the constraint of relatively fewer posts filled (for animal scientists) and this could have contributed to budget under-spending. Although some posts were also not filled, the production input task under the strategy on improved agricultural production had the budget overspent by 25.5%. This could be indicative of the need for increased allocations and the sector management decision model should present some focus on this issue.

4. Conclusions

The major challenges faced by the poultry sector entailed lacks of (a) vaccination program, (b) production skills, (c) extension support, and (d) production inputs. The mean congruence between challenges and responsive strategies was moderate (rating=2.00)

and this was a result of high degrees of congruence (ratings=3.0) for components associated with challenges (a)-(b) and low degrees of congruence (ratings=1.0) for those associated with (c)-(d). A moderate-high mean congruence (rating=2.50) occurred for strategies and tasks, and this resulted from high degrees of congruence (rating=3.0) for the components associated with challenges (a)-(b) and moderate degrees of congruence (rating=2.0) for those associated with (c)-(d). The mean congruence between the allocation and filling of posts was high (rating=2.58), and this resulted from high degrees of congruence (ratings=2.9, 2.6, and 2.6) for components associated with challenges (a), (c) and (d) and a moderate degree of congruence (rating=2.2) for component associated with challenge (b). As for the allocation and spending of budget, the mean congruence was high (rating=2.75), and this followed high congruence ratings (3.0) for components associated with challenges (a)-(c) and moderate congruence (rating=2.0) for the component linked to challenge (d).

A responsive poultry management decision model should address the components with low and those with moderate degrees of congruence and should promote a commodity based approach with a focus on poultry. The purpose should be to increase the congruence among affected sets of components as this will effectively increase the capacity of the Department of Agriculture to address the challenges faced by the poultry sector in the study area.

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6.1 Figures

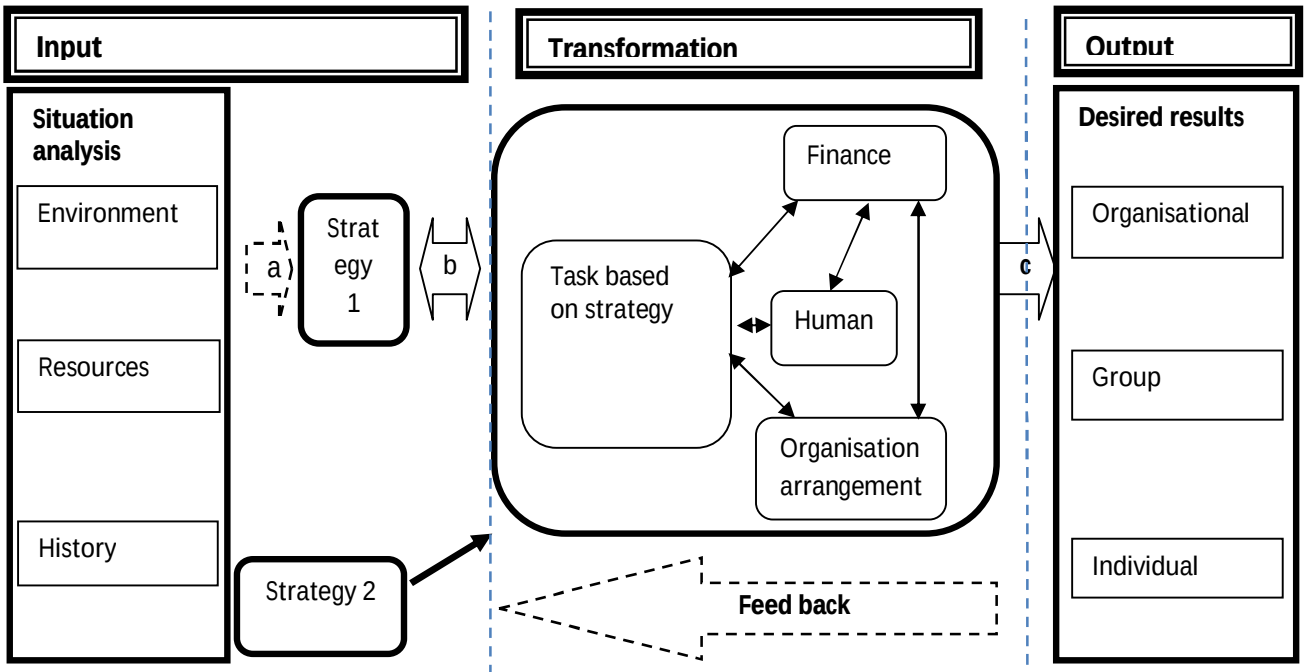

Figure 1 : Adjusted Congruence Model of Nadler and Tushman (1980)

Key:

Information flow Action flow Future flow of action

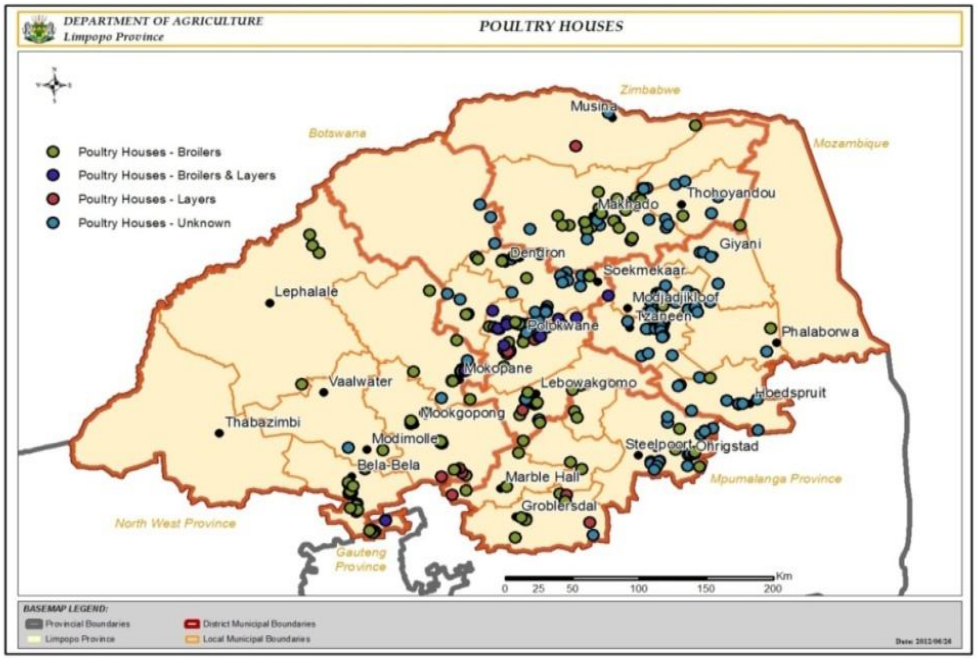

Figure 2: Map of Limpopo Province showing the distribution of poultry farmers

6.2: Tables

Table 1: Congruence rating between poultry sector challenges and LDA organizational strategies

Poultry Sector Challenge	Strategy	Rating
Lack of vaccination program	Safe and tradable animals and animal products	3
Lack of production skills	Skilled and empowered farming community	3
Poor extension support	Improved agricultural production	1
Lack of production inputs	Improved agricultural production	1

Congruence rating: 0 = None; **1** = Low; **2** = Moderate and **3** = High

Table 2: Congruence between strategies and the tasks for poultry sector within LDA

Strategy	Task	Rating
Safe and tradable animals and animal products	Control of animal diseases	3
Skilled and empowered farming community	Provide formal and non-formal agricultural education	3
Improved agricultural production	Provide farmers with technical advice	2
Improved agricultural production	Provide farmers with production inputs	2

Congruence rating: 0 = None; **1 =** Low; **2 =** Moderate and **3 =** High

Table 3: Congruence analysis for allocation and filling of posts by LDA to service poultry production

Municipality	Animal scientist				Animal production technician				Animal health technician				Mean
	Allocate	Fill	% Fill	Rate	Allocate	Fill	% Fill	Rate	Allocate	Fill	% Fill	Rate	
Aganang	3	1	33	0	3	3	100	3	7	6	86	3	**2.00**
Blouberg	3	1	33	0	3	2	67	2	7	7	100	3	**1.67**
Molemole	4	3	75	2	3	3	100	3	7	6	86	3	**2.67**
Polokwane	5	3	60	2	4	4	100	3	10	9	90	3	**2.67**
Lepelle-Nkumpi	2	1	50	1	3	2	67	2	7	7	100	3	**2.00**
Ba-Phalaborwa	1	1	100	3	3	2	67	2	5	5	100	3	**2.67**
Giyani	2	1	50	1	2	2	100	3	10	9	90	3	**2.33**
Letaba	1	1	100	3	3	3	100	3	6	6	100	3	**3.00**
Tzaneen	1	1	100	3	3	3	100	3	10	10	100	3	**3.00**
Maruleng	2	1	50	1	4	4	100	3	6	6	100	3	**2.33**
Fetakgomu	1	1	100	3	3	3	100	3	4	4	100	3	**3.00**
Tubatse	1	1	100	3	3	3	100	3	9	8	89	3	**3.00**
Elias Motsoaledi	2	2	100	3	3	2	67	2	5	5	100	3	**2.67**
Marble Hall	1	0	0	0	3	3	100	3	4	4	100	3	**2.00**
Makhuduthamaga	1	1	100	3	3	3	100	3	9	9	100	3	**3.00**
Makhado	1	1	100	3	3	2	67	2	18	12	67	2	**2.33**
Mutale	1	0	0	0	3	3	100	3	6	6	100	3	**2.00**
Musina	1	1	100	3	3	2	67	2	4	4	100	3	**2.67**
Thulamela	2	2	100	3	3	3	100	3	16	16	100	3	**3.00**
Bela-Bela	1	1	100	3	3	3	100	3	3	3	100	3	**3.00**
Lephalale	1	1	100	3	3	2	67	2	12	10	83	3	**2.67**
Modimolle	1	1	100	3	2	2	100	3	3	2	67	2	**2.67**
Mogalakwena	1	1	100	3	3	2	67	2	9	9	100	3	**2.67**
Mookgopong	1	1	100	3	3	2	67	2	3	3	100	3	**2.67**
Thabazimbi	1	1	100	3	3	3	100	3	4	3	75	2	**2.67**
Mean	**1.64**	**1.2**	**78. 04**	**2.2**	**3**	**2.64**	**88. 12**	**2.64**	**7.36**	**6.8**	**93. 32**	**2.9**	**2.57**

Congruence rating: 0=No congruence (<40% posts filled); **1**=Low (40-59% posts filled)**; 2**=Moderate (60-79% posts filled); **3**=High (80-100 posts filled)

Table 4: Analysis of congruence between LDA allocation and spending of financial resources on poultry in 2010-11 financial year (LDA, 2011)

Task	Financial allocation (R'000)	Spending (R'000)	% Spending	Congruence rating
Control of animal diseases	11 180	11 180	100.0	3
Provide agricultural education	15 564	13 240	85.1	3
Provide farmers with technical advice	126 947	126 947	100.0	3
Provide farmers with production inputs	1 440	1 808	125.5	2

Congruence rating: 0=No congruence (≥ 60% under- / over-spend); **1**=Low (40-59% under- / over-spend)**;** **2**=Moderate (21-39% under- / over-spend); **3**=High (0-20% under- / over-spend)

Table 5 : Congruence flow analysis of input and transformation components of LDA

Component of capacity	Specific aspect of component (congruence rating)				Mean congruence
Strategy	Safe and tradable animals and animal products **(3.0)**	Skilled and empowered farming community **(3.0)**	Improved agricultural production **(1.0)**	Improved agricultural production **(1.0)**	**2.00**
Task	Control of animal diseases **(3.0)**	Provide formal and non-formal agricultural education **(3.0)**	Provide farmers with technical advice **(2.0)**	Provide farmers with production inputs **(2.0)**	**2.50**
Human resource	93.3% of animal health technician posts filled **(2.9)**	78.0% of animal scientist posts filled **(2.2)**	88.1% of animal production technician posts filled **(2.6)**	88.1% of animal production technician posts filled **(2.6)**	**2.58**
Financial resource	100% of allocated budget spent **(3.0)**	85.1% of allocated budget spent **(3.0)**	100% of allocated budget spent **(3.0)**	125.5% of allocated budget spent **(2.0)**	**2.75**
Mean congruence	**2.98**	**2.80**	**2.15**	**1.90**	

Congruence rating: 0 = None; **1 =** Low; **2 =** Moderate and **3 =** High