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Innovation Profile of the Central Karoo District

1. Background

The aim of the briefing note is to share key findings of the nature and characteristics of innovation in the Central Karoo District. A survey of 25 key innovative enterprises was conducted in the District in 2019 in order to profile the key innovators.

For something to be considered an innovation, it should meet the following three criteria:

Figure 1. Innovation Criteria

2. Nature of innovation in the Central Karoo District

2.1 Innovation types

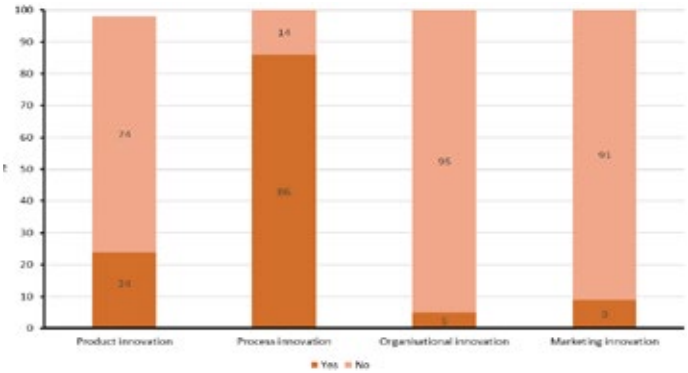

Figure 2. Innovation Types

Figure 2 indicates that process innovation, reported by 86% of the enterprises, was the most popular. This was followed by product innovation, which was reported by 24% of the enterprises. The least reported innovation types were organisational and marketing innovations. This was practiced by five percent and nine percent of the enterprises, respectively. The results suggest that the enterprises' focus is on improving the processes of producing or manufacturing goods or services.

2.2 Innovation activities

In the Central Karoo District, the main innovation activity was adoption, as reported by 91% of the enterprises. The second popular innovation activity was diffusion (35%), which suggests that a significant proportion of the innovators are sharing their innovations with others. Few enterprises (4%) reported any invention activity, while a sizeable number of enterprises (22%) reported that they adapt or make improvements on innovations they adopt. Examples of such an innovation activities are presented below.

Example one is of a fruit farm in Laingsburg that supplies fruit to fruit driers and other local enterprises within the district and nationwide. Since 2017, the enterprise has used drones to carry out security patrols and check on baboons eating the fruit. Additionally, the drones assist with monitoring water pipes in the field, ensuring early detection of damaged pipes which helps save money. This has significantly improved operations for the farm.

Another example is of a school in the district which uses its fields for olive planting. The school recently made significant changes to the irrigation system by adopting a spot-spitter irrigation technique that uses hydraulic values. This has improved the efficiency of the irrigation process as the previous system was lengthy and water was not evenly distributed to the trees. As result of the new system, time and water is saved and water distribution to the olive crop is improved.

This brief form part of a series of briefing notes that share the key findings of a study about local innovation at various rural municipalities conducted by the HSRC in partnership with SALGA and DSI. The findings contribute toward the Small-Town Regeneration and Regional Economic Development Initiative (STR/RED).

2.3 High-tech innovation versus low-tech

As shown in the figure below, a high percentage (70%) of the Central Karoo enterprises that innovated adopted low-tech innovations, while only a few (30%) adopted high-tech innovation in their business. The results suggest that the innovators focused on adopting low-level technologies to improve their production activities. The low-level technologies include, among others, solar panels, as well as smart/eco garden and aluminium machine cutters.

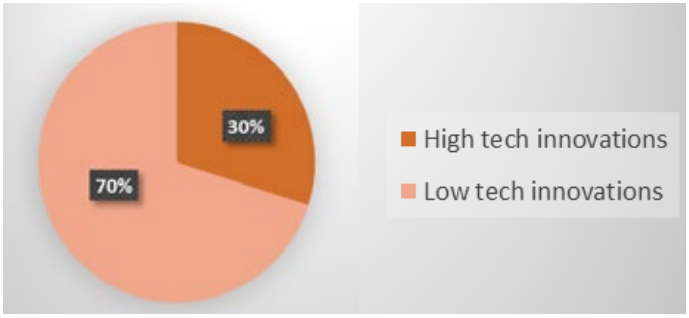

Figure 3. High-tech versus low-tech

3. Characteristics of innovators in the Central Karoo District

3.1 Size of the firm

Most of the innovative enterprises surveyed were micro (68%), with employment of 10 or less employees, and small enterprises (16%), with employment between 11 and 50 employees. These enterprises are the key drivers of innovation in the Central Karoo District, with medium and large enterprises contributing relatively small proportions of innovation (8%).

The figure below highlights that the innovative enterprises (44%) were mature, having been in operation for more than 12 years. New start-ups comprised 24% of the enterprises that were formed a year or less before the survey. This highlights the high maturity levels of the innovators, suggesting that enterprise maturity is positively linked with innovation proclivity.

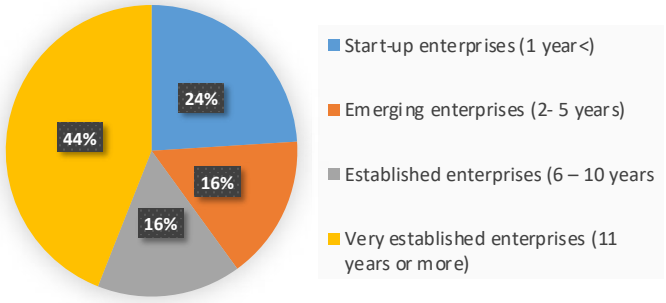

Figure 4. Enterprise maturity stage

3.2 Formal versus informal enterprises

Most profiled enterprises were operating formally, with very few enterprises meeting the criteria for informality (i.e., being unregistered with any authority). Despite being a small proportion, the number of unregistered enterprises suggest that there is also innovation that takes place amongst the informal enterprises who operate in the parallel economy. It is important that the innovations which take place in the informal settings be acknowledged and harnessed for inclusive outcomes. The results also indicated that most of the enterprises (84%) were registered with SARS, while only one enterprise was not registered for business tax.

3.3 Part of a larger organisation

Less than half of the innovative enterprises (44%) were part of larger organisations. Most (82%) of the headquarters of the innovative enterprises who were part of larger organisations were located in the Western Cape, while the others were located in Gauteng (9%) and Limpopo (9%).

3.4 Enterprise type

Innovation within the Central Karoo District Municipality is mostly done by private enterprises (84%), and less so by non-profit organisations (12%) and public enterprises (4%). The private enterprises, who are mostly farmers, embrace science, technology and innovation mostly adopted in other countries.

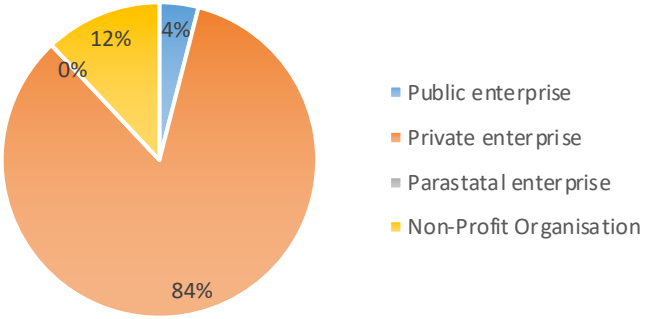

Figure 5. Enterprise type

The innovations and technology, which include water pressure regulators, drones, and solar panels for energy generation, assist farmers in maximising farming productivity as well as limiting the costly dependence on Eskom. The survey revealed that many private enterprises utilise water purification technology due to the slurry water found in the private boreholes.

3.5 Enterprise sector

Figure 6. Enterprise sector

The above figure demonstrates that most of the innovating enterprises were operating in the manufacturing and agro-processing sector (57%), followed by community social services (9%). Furthermore, the results indicated that the innovative enterprises were mostly sole owned (40%) or were owned by two individuals (35%), totalling an overwhelming majority of 75% for two or less owners. On average, the enterprises employed about 36 employees, which included about 14 permanents and 13 temporary employees.

4. Innovation for thought

This briefing note has presented an overview of the innovation profile of the Central Karoo District. It is based on a summary of the statistics from a survey on innovative enterprises undertaken during the mapping exercise of Karoo Phase 1.

The survey results have indicated that innovative enterprises were mainly involved in adopting process innovations, such as drones, water regulators, water purifiers, and solar panels, among others, with very limited inventions. In addition, the innovations found in the Central Karoo were in response to the water crisis currently faced by the district, as many innovative enterprises focus on adopting technologies that help save water or produce better quality of water.

Additionally, the use of solar panels is highly evident as it helps enterprises save on high costs of electricity. This suggests the need for improving access to information and support for these enterprises to connect with producers of modern production technologies (outside the region).

Furthermore, it is important that investments be made in promoting both basic and applied research to help promote conducive environments for inventions and adaptions. The results demonstrate that promoting networking, both formal and informal, are an important element of improving innovation performance.

5. About

This briefing note gives an overview of the innovation profile of local actors in the Central Karoo District captured during *Mapping the Innovation Landscape of the Karoo Region Phase 1* using the Local Innovation Assessment Tools (LIAT). This study was commissioned by the Department of Science and Innovation, in partnership with the Technology Innovation Agency, and is aimed at understanding the innovation landscape of the Karoo region as an important step in developing an innovation strategy for the region.

Suggested citation:

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