

Innovation trends in the electricity, gas and water supply sector, 2019-2021



In 2021, businesses in the South African electricity, gas and water supply sector contributed 3.1% to the economy.¹ But the country faces a distinct challenge to achieve energy security. Equally, demand for water exceeded supply in 2019, a deficit that is forecast to grow by 2040.² In this context, electricity, gas and water supply businesses face significant innovation risks and opportunities, with far-reaching economic and societal implications.

This brief examines how much innovation happened in the sector from 2019 to 2021, including the types of technologies businesses used, the innovation challenges they faced, and the outcomes of their innovations.

During 2019-2021, over half of businesses in the electricity, gas and water supply sector carried out activities intended for innovation, and almost all of them had developed product or process innovations by the end of 2021.

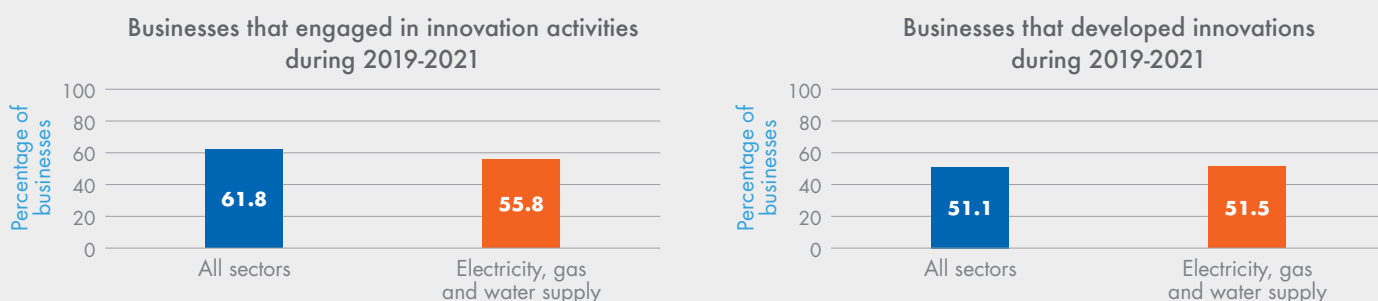


Figure 1: Percentage of businesses in the electricity, gas and water supply sector that engaged in innovation and developed innovations.

What types of advanced and emerging technologies did businesses in the electricity, gas and water supply sector use and/or develop during 2019-2021?

Emerging and advanced technologies were used or developed by only a small percentage of businesses in the sector. **Internet of Things** was the most widely used technology, but only by 15.6% of businesses, followed by **business intelligence technologies** (9%).

Engagement with advanced and emerging technologies among businesses in the sector was low.

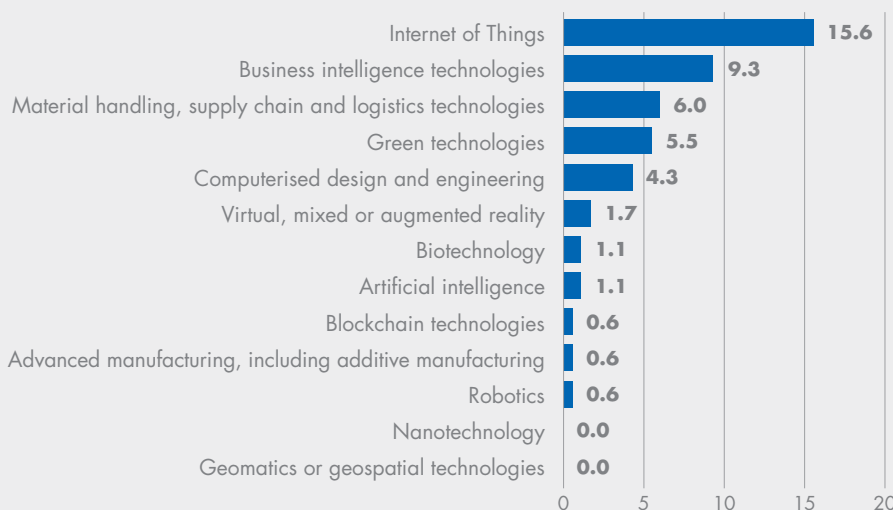


Figure 2: Percentage of businesses in the electricity, gas and water supply sector that used or developed advanced or emerging technologies.

¹ The sector includes state-owned enterprises.

² Department of Water and Sanitation (2022). National State of Water Report 2021. Available at: <https://www.dws.gov.za/Projects/National%20State%20of%20Water%20Report/Documents/National%20State%20of%20Water%20Report%202021new.pdf>. Last accessed: 19 January 2024.

What were the most important barriers to innovation that electricity, gas and water supply businesses faced during 2019-2021?

The most important barrier to innovation in the sector was **uncertain demand from domestic customers**, which was cited as highly important by 40.6% of businesses. A quarter of businesses reported that **legislation, regulation, standards and taxation** were highly important barriers.

Financial barriers to innovation were also rated as highly important, with at least one-fifth of businesses having experienced **limited access to funds and/or cost constraints**.

The most significant factor hindering innovation in the electricity, gas and water supply sector was uncertain demand from domestic customers.

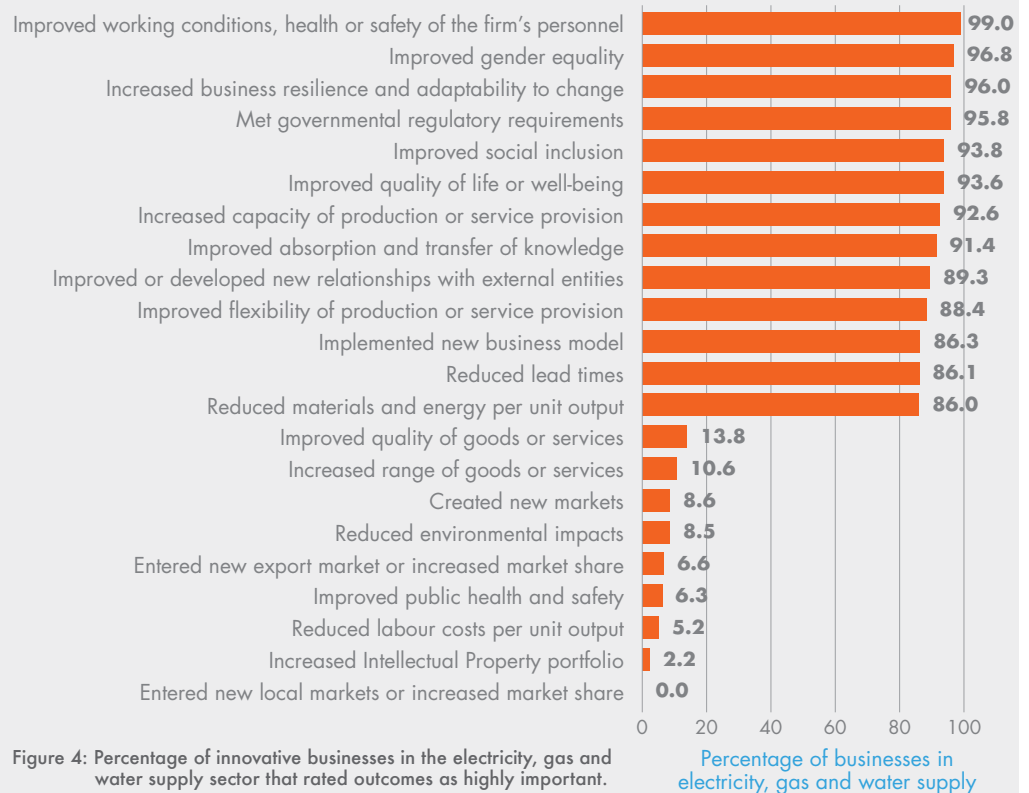


What did innovative electricity, gas and water supply businesses perceive to be the most important outcomes of their innovation(s) during 2019-2021?

Social outcomes were of high importance, with over 90% of businesses reporting improvements in **working conditions, gender equality, social inclusion** or **quality of life**.

Less than 15% of businesses reported **improved quality or range of goods or services** as important innovation outcomes. **Creating or entering new local or export markets** were the least reported highly important outcomes.

Innovations were not likely to result in product enhancements or participation in new markets, but almost all businesses reported a range of positive social outcomes.



About this brief

This brief is one of eight sector-specific analyses drawn from the [South African Business Innovation Survey 2019-2021](#). It provides deeper insight into innovation trends in the **electricity, gas and water supply sector**, so that businesses can compare and benchmark their innovation activities. Industry associations and policymakers can use the data in their efforts to mobilise and support innovation activities across the utilities sector.

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