

## Formal Innovations vs. Informal Innovations: The Case of the Mining Sector in Nigeria

**Authors :** Jegede Oluseye Oladayo

**Abstract :** The study mapped innovation activities in the formal and informal mining sector in Nigeria. Data were collected through primary and secondary sources. Primary data were collected through guided questionnaire administration, guided interviews and personal observation. A purposive sampling method was adopted to select firms that are micro, small and medium enterprises. The study covered 100 (50 in the formal sector and 50 in the informal sector) purposively selected companies in south-western Nigeria. Secondary data were collected from different published sources. Data were analysed using descriptive and inferential statistics. Of the four types of technological innovations sampled, organisational innovation was found to be highest both in the formal (100%) and informal (100%) sectors, followed by process innovation: 60% in the formal sector and 28% in the informal sector, marketing innovation and diffusion based innovation were implemented by 64% and 4% respectively in the formal sector. There were no R&D activities (intramural or extramural) in both sectors, however, innovation activities occur at moderate levels in the formal sector. This is characterised by acquisition of machinery, equipment, hardware (100%), software (56), training (82%) and acquisition of external knowledge (60%) in the formal sector. In the informal sector, innovation activities were characterised by acquisition of external knowledge (100%), training/learning by experience (100%) and acquisition of tools (68%). The impact of innovation on firm's performance in the formal sector was expressed mainly as increased capacity of production (100%), reduced production cost per unit of labour (88%), compliance with governmental regulatory requirements (72%) and entry on new markets (60%). In the informal sector, the impact of innovation was mainly expressed in improved flexibility of production (70%) and machinery/energy efficiency (70%). The important technological driver of process innovation in the mining sector was acquisition of machinery which accounts for the prevalence of 100% both in the formal and informal sectors. Next to this is training and re-training of technical staff, 74% in both the formal and the informal sector. Other factors influencing organisational innovation are skill of workforce with a prevalence of 80% in both the formal and informal sector. The important technological drivers include educational background of the manager/head of technical department (54%) for organisational innovation and (50%) for process innovation in the formal sector. The study concluded that innovation competence of the firms was mostly organisational changes.

**Keywords :** innovation prevalence, innovation activities, innovation performance, innovation drivers

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