



NACETEM POLICY BRIEF

...removing guesswork from governance

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NACETEM...Managing Technology for Sustainable Development

An Overview of Innovation in the Nigerian Business Sector

Background

Innovation is a key driver of economic progress. It brings benefits to consumers, businesses and the economy as a whole. Although several factors including knowledge, policy and infrastructure influence its rate and direction, innovation is mostly implemented by firms in a country.

Innovation, particularly in the private sector, is an important enabler of national economic success. For this reason, measuring innovation within the business sector is relevant for policy. This has been done by NACETEM in Nigeria since 2011.

The overall goal of collecting innovation indicators is to provide empirical evidence that will assist government in making policies that can enhance the capacity of firms to implement new products and services. The experience of successful developing countries shows that integrating STI policies informed by data into national development strategies offers the pathway for increased productivity and firm competitiveness.

The Approach

The methodology was informed by the 2018 edition of the Oslo manual jointly compiled by the Organisation for Economic Co-operation and Development (OECD) and Eurostat. The Oslo manual is the standard guideline for collecting, reporting and using data on innovation. The manual recommends including only businesses with ten or more employees in an innovation survey. The current survey, which is the third of its kind, covered the 3-year period between 2016 and 2018. It focused on the manufacturing and service sectors of the Nigerian economy. The results in this brief are based on data collected from 1273 firms, comprising 515 (40.5%) manufacturing and 758 (59.5%) service firms.

Central to business innovation are two pillars: novelty and commercialization. In assessing novelty of innovation, a new product should be "significantly" different from the firms' previous products or processes. This is measured at three levels: newness to the firm, market or world; these among others were measured by the survey.

Summary of Outcomes

Science, Technology and Innovation (STI) indicators, especially those from official sources are increasingly being used within companies, policy spheres and many other areas to inform policy and societal discussions. It is imperative therefore that the key stakeholders in the design, evaluation and implementation of STI policy conduct innovation survey regularly.

Most firms in Nigeria's industrial sector are innovation-active, with a high proportion of them engaging in product and service innovations. Therefore, it is important for government to play its role by providing the necessary infrastructure and other economic incentives for the industries so as to enable them to innovate. Such could also open up opportunities for export to the international markets.

The incidence of collaboration between firms and knowledge institutions is very low. It is therefore important for government, private sector, knowledge institutions and other key stakeholders to create a platform where all the key elements of NIS will interact to implement innovation. Such platforms could include periodic trade fairs, technology exhibitions, business conferences, investment conferences and academic conferences.

In recent times, suppliers of inputs to the manufacturing and service sectors have become an essential actor in the production value chain. It is important therefore that relevant government agencies create linkage programmes to promote local sourcing and enhance the local supply base.

Some of the important barriers confronting enterprises are difficulties in obtaining government grants and subsidies for innovation, high innovation cost, lack of funds within enterprise or group and excessive perceived economic risk. Relaxing bureaucratic procedures, giving tax breaks, innovation grants, establishing shared facilities such as technology parks, R&D laboratories, innovation clusters, industrial parks, special economic zones etc. will go a long way in de-risking innovation implementation among firms in the industrial sector.



Proportion of innovative enterprises

As expected, the success rate of innovation was generally lower than innovative efforts in both the manufacturing and service sectors. Of the 70% of firms that made efforts towards introducing innovation in the manufacturing sector (Innovation-active), 66% was successful (innovative). Similarly in the service sector, about 59% of firms successfully introduced an innovation out of about 64% that made efforts. The remaining firms either abandoned their innovation activities or had ongoing innovation activities at the time of data collection.

Table 1: Firms' Innovation efforts

Innovation Efforts	Manufacturing	Services
Innovation-active firms	70%	64%
Innovative firms	66%	59%

Types of innovation

Of the manufacturing firms, 61% implemented product innovation while 53% implemented business process innovation. In the service sector, 57% of firms introduced an innovative product while 45% implemented business process innovation. Across both manufacturing and services, innovation was developed mostly in-house. Moreover, most of the innovations were new to the firm. Fewer than 20% of the manufacturing or service firms, on average, had implemented an innovation new to the market.

Roles of Networks and Collaboration in Innovation

Across both the manufacturing and service sectors, firms mostly used internal and market-based sources of innovative ideas. The internal sources comprise new and existing staff while the market-based sources include customers, suppliers and competitors. It is instructive to note that the formal sources of knowledge, that is, universities and research institutes are among the least used sources of information and ideas for innovation.

The manufacturing and service firms hardly engaged in formal collaborations. Most of the few firms that collaborated had engagements within their enterprise group or with customers and suppliers.



Figure 1: Key Information sources service firms utilise to support innovation activities

Government financial support for innovation

Government support for innovation was found to be very limited. Across manufacturing and services, fewer than 10% of firms claimed to have received any form of financial support from government, including tax credits, grants and loans.

Factors hampering innovation

The most important obstacles to innovation among manufacturing and service firms were difficulties in obtaining funds (grants and subsidies) from government for innovation and innovation cost too high (Figures 2 and 3).

Objectives of innovation

Enhancing productivity and increasing revenue were the top reasons for innovation among the manufacturing and service firms.

Environmental considerations, including reductions in energy consumption and reduction of environmental impact, were less important.

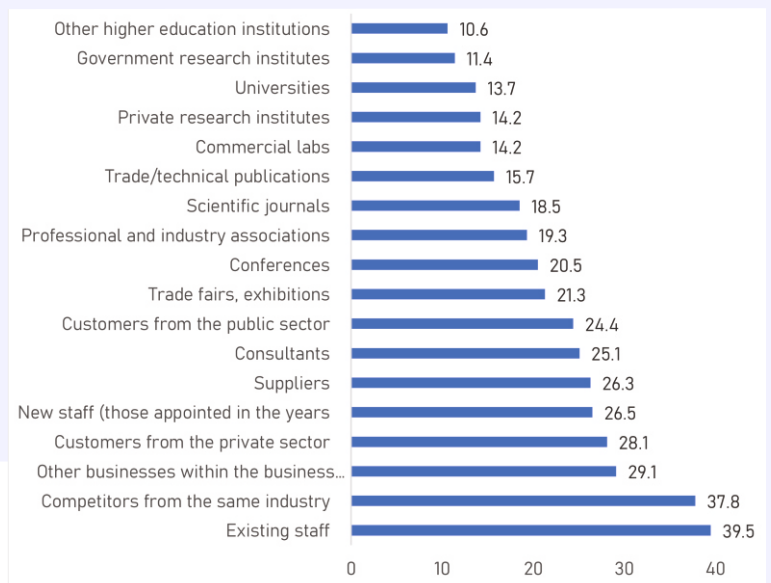


Figure 2: Key Information sources manufacturing firms utilise to support innovation activities



Innovation among Manufacturing Firms: Highlights

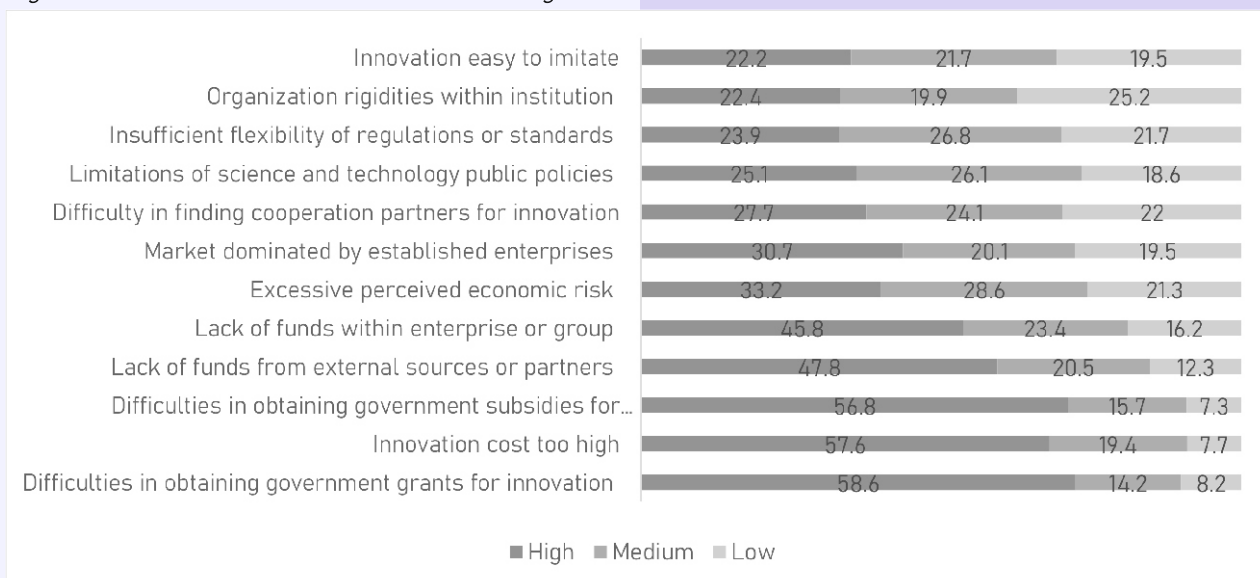
Majority of the manufacturing firms are innovative, against all odds. However, more can still be achieved if government puts in place business-friendly policies that encourage entrepreneurs to make the necessary investments in innovation in the manufacturing sector.

Many of the manufacturing firms (62.3%) recognized innovation as a top priority for their enterprises. Further analysis shows that majority of the firms would rather innovate alone or collaborate with their customers and suppliers. Collaboration with the universities, government institutions or research institutes is sparse. This is a clear indication of a weak national innovation system in Nigeria. It becomes imperative therefore for government and the private sector to create a platform where all the key elements of NIS can interact. There is also the need for a brokerage institution to initiate and nurture such interactions. Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), National Office for Technology Acquisition and Promotion (NOTAP), Intellectual Property Technology Transfer offices (IPTTOs), Ministry of Industry Trade and Investment should play a big role in this regard.

Of the innovation-active manufacturing firms, 64.3% use information and communication technologies (ICTs) as part of activities supporting innovation during the years 2016 to 2018. Prominent ICTs strategies used by manufacturing firms are: online sourcing of general information for innovation (31.3%), e-banking services (31.8%), and 26.4% for online payments to suppliers'. 29.5% of firms have adopted advanced ICTs for scheduling, inventory control, or purchasing (i.e., Enterprise Resource Planning), 28.6% currently use supply chain management system and 27.8% have adopted computer aided design/manufacturing.

Some of the barriers that confront manufacturing firms in implementing innovation include high cost of innovation (57.6%), difficulties in obtaining government grants and subsidies for innovation (58.6%), lack of funds within enterprise or group (45.8%), lack of funds from external sources or partners (47.8%), excessive perceived economic risk (33.2%), difficulty in finding cooperation partners for innovation (27.7%) etc. This result calls for a more active participation of government in supporting innovative manufacturing firms, by providing adequate innovation funds, grants and subsidies. The government should also provide efficient infrastructure and business-friendly policies that will nurture and sustain innovative firms.

Figure 3: Obstacles to innovation manufacturing firms



Innovation among Service Firms: Highlights

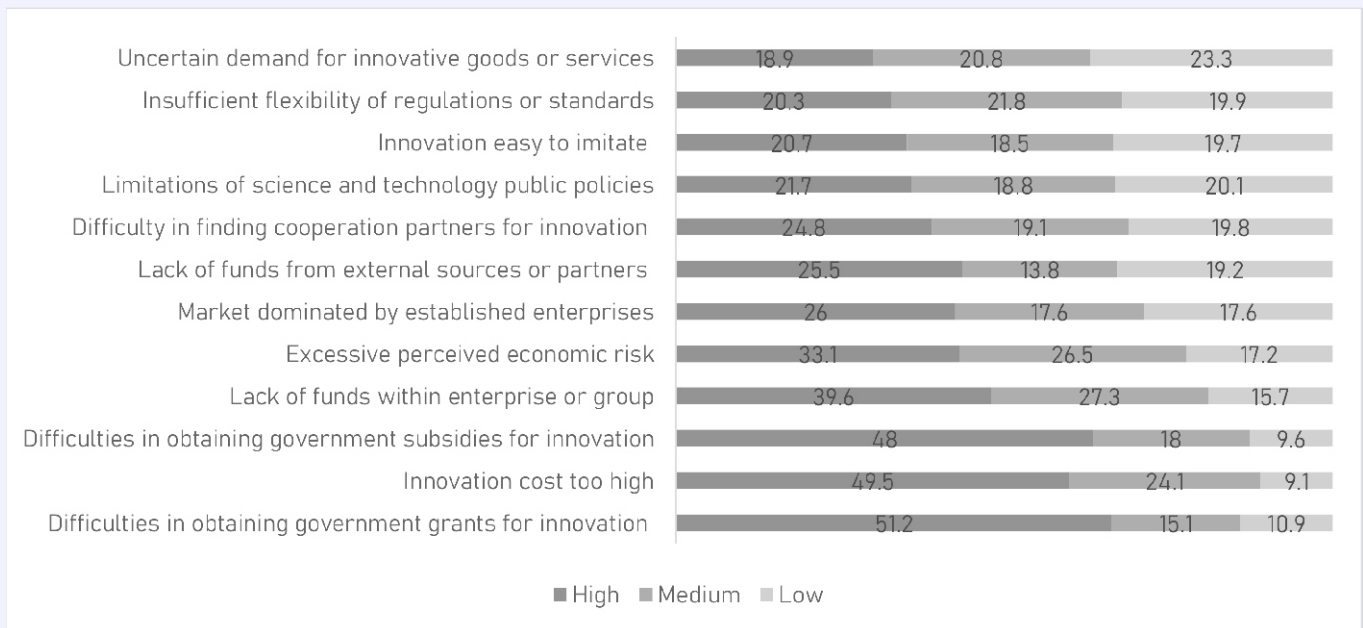
Many of the service firms identified innovation as a top priority for their enterprises with high proportion of them putting innovation strategies in place and allocating time to innovation activities. However, very few of the firms carried out Research & Development and documented methodologies to measure innovative performance. At the same time, majority of the firms in the service sector do not have a dedicated budget for innovation activities.

It appears that many of the firms within the service sector do not have the capability to develop radical products as many of the innovations were either new to the enterprise or new to the market. Very few innovations were new to Nigeria or to the world. This is also related to weak national innovation system (NIS) where key elements such as the universities, research institutes and the private sector do not interact to develop innovative goods and services or operational processes.

Many innovation-active service enterprises use information and communication technologies (ICTs) as part of innovation supporting activities during the years under investigation. These firms use ICTs to support innovation mostly for online sourcing of general information for innovation (41.1%), E-banking services (40.9%), provision of information to and from customers (31.3%); and online payments to suppliers (30.3%). However, few service firms utilised advanced ICTs such as Enterprise Resource Planning (ERP) for scheduling, inventory control, or purchasing (38.9) and Radio Frequency Identification (RFID) for inventory and warehouse tracking (8.5%).

Majority of the firms in the service sector did not benefit much from public financial support across all the three tiers of government. The same trend was observed for the financial support from foreign governments/other foreign public sources. Some of the reasons for poor access to fund include lack of information on available financial supports, bureaucracy, and the risk of exposure of confidential information. There is therefore an urgent need for government to put policies in place that will remove some of these obstacles.

Figure 4: Factors hampering innovation among service firms



Implications for Policy

- Firms seem willing to innovate, but are hampered by several factors. It is important for the government to play its role by providing the necessary infrastructure and other economic incentives such as access to credit and markets.
- Platforms that bring together the key elements of the national innovation system (NIS) are highly desirable. Such platforms could include periodic trade fairs, technology exhibitions, business conferences, investment conferences, academic conferences.
- R&D is important to the implementation of innovation, especially frontier products and processes. To encourage this, government could finance innovative projects at the prototype or demonstration stage for later uptake by the private sector. This will make Nigerian businesses more competitive in the global market. Without this, it will be difficult to take advantage of global and regional trade initiatives such as Africa Growth and Opportunity Act (AGOA) and the African Continental Free Trade Area (AfCTA).
- Relaxing bureaucratic procedures, giving tax breaks, innovation grants, establishing shared facilities such as technology park, R&D labs, innovation clusters, industrial parks, special economic zones etc. will go a long way in de-risking innovation.

About the Project

The strategic position of NACETEM as the think tank of government on issues of science, technology and innovation (STI) management enables it to regularly undertake the innovation survey on behalf of the Government of Nigeria. Specifically, one of the mandates of the Agency is to “establish, maintain and provide access to databanks on STI research outputs and facilitate activities towards their commercial exploitation.”

The National Business Innovation Survey is a component of the STI Indicators Surveys project undertaken by NACETEM. Other surveys in the project include the Research and Experimental Development (R&D) Survey as well as the Innovation Survey in the Informal Sector.

These form Nigeria's inputs into the African Science, Technology and Innovation Indicators (ASTII) Initiative of the African Union Development Agency New Partnership for Africa Development (AUDA-NEPAD). The ASTII initiative, which was implemented among 28 countries in the first round is now undertaken among over 40 African countries in the third round. It is aimed at developing comparative indicators that can be used to assess the performance of African Union (AU) member countries in STI and to inform policies that can drive technological development on the continent.

About NACETEM

NACETEM is an agency of the Federal Ministry of Science and Technology vested with the mandate of training and developing middle-to-high level manpower, conducting policy research in science, technology and innovation management and providing policy advisory services to all tiers of government & the private sector. NACETEM provides the critical knowledge support and constitutes the software component of the National System of Innovation.

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