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CONCEPTS AND STRATEGIES IN INFORMATION UTILIZATION FOR INDUSTRIAL DEVELOPMENT IN NIGERIA

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Introduction

Industrial development of the underdeveloped countries has become one of the great world crusades in recent times. It is a campaign in which the advanced countries compete with one another to meet the rising claims of the non-industrial countries for help for being industrialised. It is also an effort in which the developing countries place a major hope of finding a solution to their problems of poverty, insecurity, and over-population. The belief of the developing countries was expressed by Nehru in Bryce (1960) who opined that "Real progress must ultimately depend on industrialization".

The reasons for this explosion of interest in industrialization are not hard to discover. The developing countries have long been mainly producers of raw materials, and they have observed that there is a strong and positive connection between the wealth and standard of living of a country and the extent of its industrialization. They also see that the prices of raw materials fluctuate much more than the prices of manufactured goods. There is therefore a significant relationship between industrial development and economic development.

Studies of Nigeria's industrial development (Kilby, 1969; Akeredolu-Ale, 1971, 1972; Usoro, 1974; Olaoye, 1985) have tried to put forward an explanation of the timing and nature of Nigeria's industrialization process. They have tried to explain Nigeria's slow pace of industrial development and argue that political factors are as important as economic ones in determining the timing and nature of Nigeria's industrialization process. This paper intends to analyse Nigeria's concept of industrial development and the strategies adopted so far towards its advancement.

The concept of Industrial Development

Industrial development is the spread of industrial techniques of organisation and production in an endeavour to actively control and manipulate physical environment in the interest of society. It involves an attempt to raise output per head and to develop economies in such a way that they become nationally integrated, flexible and self-sustaining growth.

Rweyemanu (1980) has identified several mechanisms by which industrial development can ensure this self-generating and self-sustaining growth. First, the process of industrial development involves increases in labour productivity occasioned by consistent technical progress. Technical progress takes the form of factor inputs increasing their efficiency over time.

Second, industrial development involves the raising of the productivity of other sectors such as agriculture, mining, etc. through the provision of external economies such as new skill, new attitudes to work, increasing supply of basic inputs etc.

Finally, industrial development makes it possible to alter the pattern of output in response to changes in the structure of demand without incurring substantial loss of total productive capacity or significant relative price shift.

Thus industrial development ensures that an economy becomes more flexible, and more responsive to changes in the taste of the society. This element of flexibility and responsiveness of the industrial structure

is of significant importance to the overall economic growth and development of a nation.

From the foregoing, it is clear that the indices of industrial development are productivity of labour, increased employment, increased supply of local raw materials or basic inputs, overall increase in domestic output, capacity utilization, increased flexibility of the economy as evidenced by availability of varying products, size of industry as evidenced in increase in number of branches and the geographical distribution and the impact of the rural areas.

Industrial development is not just a question of economies of selecting projects which can be proved to be viable in commercial terms and guaranteed to provide employment. It concerns people and the way they live. It is also an aspect of economic development which embodies agriculture, industry, imports/exports, energy/power, gross domestic products, gross national product, transport and communication, education and health. In other words, industrial development is one aspect of the development process, and can be effective only if it constitutes one of a number of activities introduced as part of a well thought out development policy.

Industrial development has both benefits and costs. Large scale industrialization for example has often been associated with increased environmental pollution. Furthermore, the increased use of capital has, in many instances, been known to displace previously employed labour. Importation of key industrial plants and intermediate inputs for manufacturing, could sometimes lead to excessive utilization of foreign exchange facilities.

The industrial development indicators, percentage local sourcing of raw materials and capacity utilization have been extensively used for industrial surveys in Nigeria (Raw Materials Research and Development Council, 1989), Manufacturers Association of Nigeria (1990). In this regard, they have been the basis of measurement of industrial development in this study.

The local sourcing of the industrial raw material in Nigeria has increased since the introduction of the Structural Adjustment Programme (SAP). But the problem still persists and has been aggravated by increased Local cost of importing those inputs that cannot yet be procured locally. The weak raw material base of the industrial sector is linked with the neglect, in previous years, of agricultural production and the processing of solid minerals, two sectors which would have provided an adequate raw material base for the manufacturing sector. The problem of shortage of machinery and spare parts is much more seriously felt, since very limited capacity currently exists in Nigeria for local fabrication of even the simplest machines designed or adapted by research institutes are hardly commercialized.

Capacity utilization has been suggested as "one of the growing points of a rapidly expanding economy" (Rweyemanu, 1980). It can therefore be used as both an indicator of the industrial patterns of an economy as well as a measure of the development of an economy. Indeed, it now seems to be a general belief that the prevalence of excess capacity is a phenomenon peculiar to developing countries, and hence the United Nation Industrial Development organization (UNIDO) asserts that "every developing country with a significant programme of industrialization complains of excess capacity" (UNIDO, 1980). More specifically, similar assertions have been made with respect to Nigerian industries. Usoro (1974), for instance, argues that in Nigeria the existing capital stock is not utilized at a capacity and that managers of industrial establishments record this openly in their reports. In the light of the generally assumed shortage of capital in the developing countries, the extent of capacity utilization must not just be ascertained, the causes must be analyzed so as to eliminate idle capacity. The identified causes of under-utilization, on the other hand, depend to a limited extent on the measures of capacity utilization employed. The emphasis of recent studies is on the relationship between what can be produced and what is being produced rather than the economic concept of capacity utilization. This relationship can be measured along three dimensions, shift production, operating periods and total production (Teriba, Edozien & Kayode, 1981).

By any measure, there exists under-utilization of capacity in most Nigerian manufacturing plants. In

seeking an explanation for this level of capacity utilization, one could use the reasons generally given, which can be divided into two classes: those resulting from shortages of raw materials, energy and parts, and those resulting from the market. The latter could include inadequate marketing or sheer inadequacy of primary demand. These reasons alone cannot, however explain the situation, it is more helpful to take account of such basic factors as the indivisibility of plant and equipment, of the demand, as well as the monopolistic and oligopolistic structures of the market and management. Nigeria's concept of industrial development is therefore a measurement of such indices as percentage sourcing of raw materials and capacity utilization.

Strategies of Industrial Development in Nigeria

The recognition of the importance of manufacturing industries in the process of economic development has led to the problem of choice of appropriate strategy of industrial development. The need for this choice has arisen from the fact that the problem of economic development in the less developed countries is usually seen as one which requires urgent solution and because a careful orchestration of the process of industrialization may make the end result more socially and politically acceptable. Neither of these objectives can be ensured if the initiative for growth/inducing activities is left to only uncertain market forces.

Oyejide (1975) has identified a number of approaches to industrial development that may be adopted by a developing country. The first of these is the processing of raw materials available in a country. Since the economies of most of these countries are based to a large extent on the export, in raw form, of various primary products, a natural extension along the path of economic development is the processing of the primary products before they are exported. This leads to increase in income and employment, and the experience gained from the processing of raw materials can enhance the country's ability to start actual manufacturing.

A second approach is the domestic product of manufactured goods for the domestic market. This inward-looking strategy of industrialization, which is based on import substitution (i.e. the replacement of import of manufactured goods by domestic production), has been the more popular with most of the developing countries in the last decade. Its popularity lies in the fact that it involves a process of industrialization which is tailored to the potential as well as known requirements of a ready-made market, and in its early stages, is usually limited to the replacement of imports which can be produced with unskilled and semi-skilled labour and little or no application of advanced technology methods.

A third approach, which may be described as outward-looking, consists of the domestic production of manufactured goods for exports. This approach is relatively more difficult because it requires any or a combination of the following: provision of generous industrial raw materials and the establishment of high cost industries which often characterize the later stages of import substitution with tariff protection.

Teriba and Kayode (1977) argue that whichever approach, in whichever sequence is adopted, there are other considerations in the formulation of an industrial development strategy. These are the kind of industries to be established and the relative factor-intensity to be encouraged. They stressed that the process of industrial development in developing countries does not necessarily fit neatly into the general pattern described above. The adoption of any of the approaches enumerated above may come about by default or as a matter of accident rather than a deliberate process of choice.

The strategy of industrialization in Nigeria has been analyzed by Oyejide (1975) in terms of four basic sources of growth, namely growth in final consumer demand, intermediate demand, export demand and replacement of imports. Growth in final consumer demand involves demand for the end-product of manufacturing industries. Growth in intermediate demand involves essentially use of one domestic industry's products in the production processes of other domestic industries. Growth in export demand is a particularly important factor where industrialization is based on an outward-looking strategy. Growth in the replacement of imports is by domestic production or import substitution.

The result of Oyejide's empirical analysis shows that import substitution emerges as the dominant source of growth in Nigerian manufacturing industries (30% of the growth). Export expansion made a negligible relative contribution of 0.1 percent.

The adverse effects of the import substitution strategy used by Nigeria are well known from the experience of a number of Latin American countries. The highly protective tariffs have unfavourable effects on the structure of manufacturing industries and weaken the incentive to produce good quality goods and to improve productivity. Thus, while the empirical analysis and international comparisons already presented give the indication that the potentials for industrial growth through import substitution have not been exhausted in Nigeria (Teriba, Edozien, & Kayode, 1981), there is a need to recognize the problem which an inward-looking strategy may cause and to be ready to change over to an alternative strategy to preclude these problems.

The Nigerian manufacturing sector is divided into ten sub-sectoral groups to help in techno-economic surveys. These are:-

1. Food, Beverages and Tobacco
2. Chemicals and Pharmaceuticals
3. Pulp, Paper, Paper products and publishing
4. Textile, Weaving Apparel and leather
5. Wood and Wood Products
6. Base Metal, Iron and Steel Products
7. Non-metallic Mineral Products
8. Electrical and Electronics
9. Domestic and Industrial Plastic and Rubber
10. Motor Vehicle and Miscellaneous.

The Contribution of Information Utilization to Industrial Development in Nigeria

Globally, some authors have attempted to establish a relationship between national development and the quality of a nation's information services. (Dean, 1976; Adams, 1975; Adimorah, 1976; White, 1980). All these authors maintain that there is a rough correlation between the economic wealth of a country and the sophistication of its information services. In addition, the United Nations Industrial Development Organisation (UNIDO), further to its mandate to promote the industrialization of developing countries, has over the past twenty years conducted surveys for the assessment of technological information resources and services in developing countries in relation to their national priorities and programmes of development. These surveys showed that developing countries were beset by several constraints viz:-

1. Lack of information resources and services.
2. Lack of awareness of the type and location of information already available in the region.
3. Shortage of foreign exchange for the acquisition of information from outside, either in published form or through visits of users to technical meetings and specialised exhibitions.
4. Lack of coordination and cooperation in the collection and dissemination of local information i.e. statistics, profiles of industries, technical and professional services, equipment and products, spare parts available, internal trade data, etc.

Etim (1992) surveyed the extent of use of information by the ten industrial sectors. Production Managers of Nigeria's manufacturing industries from the ten industrial sectors were interviewed on their extent of use of institutional information sources in Nigeria. Results are shown in Table 1. This shows a generally low information utilization.

Table 2 shows the mean of percentage capacity utilization as industrial development regressed

Table 1

Means of Information Utilization and Industrial Development For The Ten Industrial Sectors

No.	Industrial Sector	Information Utilization	Industrial Development
1.	Food, Beverages and Tobacco	1.5	34
2.	Chemicals and Pharmaceuticals	1.2	17
3.	Pulp, Paper printing and Publishing	1.1	24
4.	Textiles and leather	1.4	50
5.	Wood and Wood Products	1.1	35
6.	Base Metal and Steel	1.4	23
7.	Non-metallic Minerals	1.6	34
8.	Electrical and Electronics	1.4	24
9.	Domestic and Industrial Plastic	1.6	29
10.	Motor Vehicle Assembly	1.2	19

Table 2

Simple Regression of Industrial Development on Information Utilization

Independent Variable	Constant	B	Beta -Wt	Standard Error	Simple R	R^2	F - Ratio	P - Ratio	Remarks
Information Utilization	-3.62	21.34	0.46	2.27	0.46	0.209	106.17	0.001	Highly Significant

Linearly on information utilization treated as a single aggregated variable score. The table shows that there is a very highly significant relationship found between industrial development as dependent variable and information utilization as independent variable. Information utilization contributed about 21% of the total determination of industrial development in Nigeria (R = 209, F = 106.17, P = .001).

Conclusion

Nigeria's slow pace of industrial development has been explained in terms of political and economic factors. Its indices of measurement have also been examined using such indicators as percentage local sourcing of raw materials capacity utilization. Nigeria, as a developing country, has been shown to witness substantial import replacing industrialization.

Information can accurately be considered as a necessary ingredient to scientific process and the backbone to technological development.

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