CHAPTER THREE

NATURE OF DIVERSIFICATION-I
ANALYTICAL FRAMEWORK & EMPIRICAL ANALYSIS
PART I - ANALYTICAL FRAMEWORK

FUNCTIONAL RELATIONS AMONG PRODUCTS

The activities of a business firm act like a prism and reflect a spectrum of certain relations among themselves such as similar material input, manufacturing process, material output, and market among products. A systematic anatomy of product composition of any manufacturing concern, therefore, would reveal that its product structure has some interse functional relations which may be classified into the following six types:

1) Uniform functions,
2) Divergent functions,
3) Convergent functions,
4) Successive functions,
5) Diagonal functions, and
6) Lateral functions.

This arrangement of product relations not only suggests that diversification is of various kinds or degrees diversification very widely but also facilitates our

\[1\text{Monograph 27 of the Temporary National Economic Committee classified multiplant firms into five broad types namely uniform functions, divergent functions, convergent functions, continuing functions and unrelated functions. Willard L. Thorp and Walter F. Crowder, The Structure of Industry, TNEC, Monograph 27, Part II, Chapter 3 (1941).}\]
visualisation of the nature of diversification moves of the sample companies in the selected manufacturing industries.

Of these functions, the first category may be called as single product diversification or just product differentiation; whereas the last class may be termed as pure diversification. Between these extremes, there lies a queer blending of materials, processes, and markets which give rise to the remaining functional relations among products. The characteristics of the enumerated functional product relations are discussed below:

1) **Uniform Functions**

A manufacturing concern is usually described as a single product firm when it is tied to a uniform function operated by its plants and because of the uniformity among the functions of its plants, it gets the physical output in one product. In fact, there is seldom a business organisation which despite having uniform functions, produces one homogenous perfect model of its product, and it is generally observed that with a view to catering to different purses, different purposes, and different tastes, an average product single/firm usually produces a wide range of grades, brands, designs, or sizes of its product.

Examples of uniform functions or product differentiation are legion in almost every industry and to illustrate at random, one company namely Kirloskar Electric produces a
very wide range of electric motors such as tubewell motors, ring-frame motors, humidifier motors, vertical flange motors, dryer motors etc. Similarly, Simpson & Co., in the transport equipment industry manufactures a variety of Parkin Diesel Engines such as vehicle type engines, industrial engines, and tractor type engines. Such companies which have uniform productive functions have heavily concentrated on finding out new missions, uses, and applications for their products. To these companies invention of any new use or market for their products is of as much importance as making a new product. This strategy of finding out new uses and markets for the existing products is calculated to attain not only expansion or growth within the company but also motivates the company to free itself from dependence on a limited number of markets and consuming industries. Rightly (and not accidentally, the Chairman of Kirloskar Electric Company once said -

"... the range of application of Kirloskar motors include machine tools, wood working machinery, steel mills, paper and pulp mills, textile mills, flour mills, air conditioning and refrigeration, printing mills, cement mills, mines, cranes, hoists, elevators, pumps, compressors, fans, blowers and many other industrial application ... in agriculture, there is large scope."

ii) Divergent Functions

A company is said to be engaged in divergent productive functions when in its production process it utilises a common (not necessarily identical) base — an area of specialized skill or material in manufacturing. Thus, a
manufacturing concern which produces different products on
the use of common raw materials, by-products and wastes of
the primary materials, may be considered as having material
divergent functions; whereas another concern which produces
different products in the physical and market sense (because
of a common base in machines, machine tools or sub-assembly
which perform like processes) may be viewed as engaged in
process divergent functions.

To illustrate, a sugar company, namely Rohtas Mills,
gets mollases and begasse as by-products of its primary
activity i.e., sugar manufacturing. In order to utilise the
first by-product the company stepped into the manufacture of
industrial alcohols and synthetic chemicals, whereas to
utilise the begasse, the company diversified into the manu-
facture of pulp and paper. Another striking illustration
of material divergent functions is Modi Industries which
after having a base in oil, diversified into the manufacture
of hydrogenated vegetable oils, soaps, glycerine, toilet
articles, paints, varnishes, distempers. Similarly, when
this company set up its own capacity to manufacture tin
containers for packing vegetable oils, it further diversified
its production by manufacturing torches and lanterns so that
it could use the wastes of its tin-smithy workshop.

Cases of process divergent functions also are not
uncommon. For example, a sugar company, namely K.C.P., after
having diversified into the manufacturing of sugar mill
machinery further widened the range of its engineering activities by taking up fabrication of cement machinery, paper machinery, and chemical plants so that it could utilise its expanded casting and machine tooling capacities, and at the same time may not completely depend upon one industry for its turnover. Similarly, a large number of textile companies produce cotton, rayon, silk and woolen textiles because of common spinning and weaving facilities.

The divergent functions are usually adopted to obtain optimum utilisation of resources particularly when there are economies of bulking and of common production costs such as economies of bulk purchase or utilisation of bulk by-products and wastes. Similarly, these functions emerge when the capacity of the bulky specialised plant layout cannot be used optimally in one line of production. In this context one industrial engineer in charge of product development put it, "Everytime we make something, we have something left over and have to find something to do with it. And when we find something to do with it we usually find that leaves us with something else. It is an endless process."

**Convergent Functions**

Firms are said to have diversified into convergent activities or functions if they produce a set of physically different products based upon common channels of marketing expertise and facilities. Since the final demands of the products which pass through a common market flow are either
complementary or competitively related with one another, the sub-classification of convergent functions, therefore, can be made accordingly.

Thus, a company which produces dry cells has, naturally, a strong temptation to produce torches just as another company which produces tooth paste has a temptation to produce tooth brushes. For example, the Union Carbide India which initially had manufacturing interests only in dry cells, later on diversified into the manufacture of flash-light cases. Likewise Phillips India which produces incandescent lamps also maintains manufacturing interests in a wide range of light fittings and accessories. Similarly, Bengal Chemicals and Pharmaceuticals Works while manufacturing drugs, insecticides, chemicals, and toilet goods, manufactures also hospital equipment, laboratory appliances, scientific instruments, and fire extinguishers. Such diversified activities are classified as complementary convergent functions.

Just as full line supply and complementary relations open new vistas for diversification so also in a reverse direction the potential threats from competitive sources and substitutes exert powerful pressure on a manufacturing concern to diversify its activities. For example, in the present age of chemistry and synthetics, the cotton textile companies, in order to maintain a strong competitive supply position, are reacting to the challenge of man-made fabrics (like
rayon, nylon, orlon and so on) which have characteristics as wash-n-wear, dip and dry, either by vigorously improving their own efficiency in cotton textiles or by themselves taking a leap into the production of synthetic fabrics. In the packing industry, Metal Box Company of India which once enjoyed a sound monopoly of manufacturing metal containers and closures, when threatened by the availability of new substitutes such as products of plastic and paper industries, diversified its existing activities into the manufacturing of flexible and rigid plastic packages as well as paper packages so that it could meet effectively the threat of competition from non-metal materials for the packing industry. Likewise there are many other instances when companies originally producing natural rubber, soap and detergents, paper, and leather, when challenged by synthetic substitutes, have installed their own capacities to produce synthetic rubber, synthetic detergents, transparent paper, and artificial leather. In this way the challenge has been converted into an opportunity of moving into new lines of production. Such types of diversification moves may aptly be termed competitive convergent functions.

2 The other reason for diversification is shortage of tinplate in India due to low indigenous productive capacity and severe import restrictions.
Again, sometimes in the process of selling complementary or competitive products or both, a company builds up an extensive marketing network as a result of which it is emboldened to produce a number of other unrelated products to the main product or products so as to utilise in common the marketing facilities and services built up previously for the principal products. For example, Dyer Meakin Breweries which has been producing and marketing beer and alcoholic drinks for over a century, has recently embarked upon the production of soft drinks, canned fruits, sauces, breakfast foods, malt extract, yeast, and milk products, so that it may not only offset a declining market for its principal products due to prohibition policy of the Government, but may also judiciously utilise its existing market expertise and capacities. Likewise Hindustan Lever, a well known concern engaged in household products like vanaspati, toilets and soaps, has recently diversified into dehydrated vegetables, animal and poultry feeding stuffs, and milk products. Since most of these manufacturing activities are unrelated or very remotely related with the primary products of the companies but have like market conditions and share a common base of marketing expertise geared to mass consumption, these can be named as unrelated convergent functions.

These convergent functions which enable a manufacturing concern to break into an arena of new activities are largely undertaken with a view to stimulating the sale of
basic products, meeting the conveniences of diversified dealers, maintaining a reputation for industrial leadership in a particular territory or a particular area of business activity, and developing a strong competitive supply position besides ensuring the use of their selling staff to capacity.

Kaplan considers all convergent and process divergent functions as a case of circular integration because according to him "Typically illustrations (of circular integration) are the continual addition to the line in the manufacture of drugs and chemicals where the same basic research or skills give rise to a variety of products, and in the distribution trades, where the same facilities are used to handle a widening range of products and services."  

**Successive Functions**

When an enterprise operates at more than one stage of manufacturing a final product, that is, when various sequential activities in the production of a product are carried out consecutively in time by the enterprise such that at each stage of operations, the product has its market and is thought to be saleable, the enterprise is regarded as engaged in successive functions or vertical

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integration. But when the series is short and the sequential outputs are not commonly regarded as saleable (such as various subsidiary and ancillary activities or processes like repairs, wood working, and packing, within a given factory scheme), the series is not usually regarded as an example of vertical integration.

The most familiar example of a vertical integrated flow of production from primary raw materials to finished product is of the companies operating in basic metal industries. For illustration, one company included in the sample, Tata Iron and Steel Company (TISCO) mines the iron ore and other metallurgical matters, carried them to its smelters and rolling mills where its fabricating facilities convert the basic metals into castings and forgings and subsequently enable the company to manufacture billets, slabs, sheets, bars, rails, axles, and structural. The company also mines its own coal and makes necessary refractories and furnace lining bricks from its own quarries so that it may be self reliant at all the stages of steel manufacturing. Similarly, the Western India Match Company (WIMCO) whose main business is in matches, also manufactures certain basic raw materials like salt, glue, potassium chloride and packing materials like wrapping, and label paper, for the main product. Risk of failure of supplies at appropriate times and in necessary quantities has often carried the firm into successive relations or vertical
integration downstream towards the production of raw materials and packing materials. To illustrate, the urge for security in the timely procurement of glass bottles has carried Dyer Meakin Breweries to the manufacture of bottles because in 1964, the company had a very dismal experience which was narrated by its chairman in the following words —

*A very disturbing feature of current year trading has been the acute shortage of beer bottles due to failure on the part of suppliers as the result of breakdown in their furnaces. Unfortunately, this shortage occurred when our own beer season was in full swing.*

Fear of unduly high prices in raw material markets (because of either decline of price competition or severe import restriction); availability of fiscal or technical facilities for import substitution; a vigorous pursuit of the economies of large scale production particularly the ones emanating from the use of elaborate specialised machinery; and a keen desire for engineering a self-sustained growth in a market where differential advantages can be reaped by optimally utilising the existing skills, facilities and knowhow have also induced the companies to take up various successive functions which are either backward or forward vertically integrated with the principal venture or ventures.

Cases are also observable where a company on facing cut-throat competition at one sequential stage of production

5Chairman's statement made at the annual general meeting, 1964.
rather than at the other, makes a departure from the former losing stage of production to the later ones which promise better stability and high margin of return. This type of movement is most common in the upstream of further processing and distribution of the relinquished product.

v) **Diagonal Functions**

It is not uncommon among the manufacturing concerns to provide within their organisational ambit certain ancillary goods and services to meet the requirements for the several main lines of production. Maintenance of such ancillary activities may be called as diagonal functions as "Diagonal integration consists in the provision within an organisation of auxiliary goods or services required for the several main processes of lines of production of that organisation. An organisation may, for instance, provide its own designs or power, make its own tools and machines or use its own carpenters' services for repairs. This integration is diagonal since — auxiliary goods and services help a number of lines or successive processes and can only be pictured as slanting into the main structure at various angles."^6

Adleman considers all diagonal, complementary convergent and common material divergent functions as cases of vertical integration because in the first two cases "the 'convergent functions' of another group are also subdivided:

^6P. Sargent Florence, op.cit., p. 45.
(a) 'complementary products', where two or more specialised plants supply the several components of the finished product, (b) 'auxiliary products', where one plant supplies a product or products of another. Both of these seem to involve that progression from earlier to later stages of production which constitutes vertical integration, whereas in the third case "The possession of an establishment for further processing a by-product is vertical integration." Similarly, he also considers all divergent functions originating from like processes and competitive convergent functions i.e., like market functions as cases of horizontal integration because in these cases activities are complementary rather than consecutive in time. Sargent Florence considers that "It might be more intelligible, if instead of convergent, divergent, vertical and diagonal integration, the terms 'materials', 'products', 'processes' and 'services' integration were used." 

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7 M.A. Adelman, op. cit., p. 284.
9 Joint products which are defined as goods made from the same raw material or sub-assembly. This would seem to be horizontal rather than vertical integration .... Like processes or producing goods which are different in the physical and market sense, such as woolen and cotton woven goods. This constitutes horizontal integration.

10 P. Sargent, Florence, op. cit., p. 45.
vi) **Lateral Functions**

When a company moves beyond the areas of its primary industry to which it belongs and takes up the products of unrelated industries, it is said to have lateral functions or conglomerate integration. In fact, this is true diversification which people have in their mind when they talk of diversification. Cases of lateral diversification or of producing multiple products of unrelated industries include a wheat flour milling company like Ganesh Flour Mills taking up the manufacture of electrical goods and appliances such as electric fans and fractional horse power motors, or a jute textile company like Fort Gloster embarking upon the production of electric cables. Similarly, the entry of Birla Jute Mills into the cement industry and that of Modi Industries (formerly Modi Sugar Mills) into the production of alloy/rods and wires are also cases of lateral diversification.

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12 The term conglomerate has been used negatively in economics to refer to a business that is neither horizontally homogeneous nor vertically integrated, but the meaning of the term is not clear because the concept of horizontal and vertical integration are imprecise and because there are also other forms of structure." D. Corwin Edwards, "Conglomerate Bigness as a Source of Power", *Business Concentration and Price Policy*. Princeton: University Press, (1955), p. 331.
Lateral diversification stands apart from other diversification strategies divergent, convergent, successive and diagonal because the former is wide open and requires new skills, techniques, and facilities. As a result, it "almost invariably leads to physical and organisational changes in the structure of the business which represent a distinct break with past business experience." On the contrary, the latter moves are restrictive in the sense that they delimit the field of interest, since such moves always emanate from some related areas such as technical, financial, and market resources which are used for the original product line.

A complex matrix of objectives such as to offset a diminishing market, to maintain stability by distributing risks on several markets, to realise maximum benefits from the modified tax structures and differential fiscal policies, to reap higher profits in the exploding industries, and to maintain a social prestige for industrial leadership motivate the firms to undertake conglomerate functions or lateral diversification paths.

Sometimes, cases of multiple products of unrelated industries may not always be so unrelated as is commonly made out because "a concern performing divergent functions may produce a series of joint products or by-products and

may integrate the production of any of them vertically down to the ultimate consumer. In connection with any of them it may perform convergent function by producing articles that are complementary or auxiliary, or that pass through the same distributive channels, or that reach the same customers. In connection with any of the secondary commodities, it may integrate vertically back to the raw material, and at any stage in the backward integration may take a new divergent functions that carry it into a new range of products. Thus there may be such lines of functional congruity among business activities that at first glance sprawl across functions apparently unrelated; and where there is no such congruity it probably could be introduced by adding appropriate intermediate activities. The true conglomerate is relatively rare.\textsuperscript{14} Thus, great care is necessary before declaring an activity to be completely unrelated to the line of existing production.

Choice of Functions

The description of characteristics of various functional relations among products which yield different paths of diversification obliquely suggests that firms prompted either by accidents of current requirements and windfall opportunities or because of implementation of a well defined long-range company policy, do not adopt a single

\textsuperscript{14}D. Corwin Edwards, op. cit., p. 331.
isolated path of diversification. In many cases one diversification strategy would be superimposed upon another because a particular diversification path which may be highly plausible from the point of view of one of the objectives of a company may be less commendable with respect to its other objectives. Thus the desire to maintain a judicious balance between various competing and complementary objectives compels a company to embark upon a combination of various types of diversification paths. For example, if a company experiences a downward trend in its demand, it would be very unwise for it to take up vertical or successive diversification, since this strategy would not be an effective device to ward off an eventual decline of business. On the contrary if a company's principal industry promises an exploding demand or witnesses a zooming growth, both vertical and horizontal diversification would be the best strategy for strengthening its competitive position. Similarly, if the major objective of a company is to achieve stability, lateral diversification is called for where horizontal and vertical diversification moves do not promise a sufficient stabilising influence.15

15"... both vertical and horizontal diversification vectors offer only a limited potential for objectives. They make a limited contribution to flexibility and stability and they will contribute to the other objectives only if the present economic environment of the firm is healthy and growing." H. Igor Ansoff, Corporate Strategy, op. cit. p. 134."
Again, if the company experiences a narrow technological base in relation to its unforeseeable future contingencies, lateral moves into new areas of technology would provide a cushion against the risks of narrowness of technological base.

To sum up, each of the diversification paths has distinctive features of its own and each is more appropriate under certain conditions than any other. It cannot be said that one way of diversification is ‘more’ or ‘less’ diversified than another and it would also be absurd to consider that one particular type of diversification is always better than another unless the specific situation as a given company faces is properly evaluated.

PART II - EMPIRICAL ANALYSIS

The task undertaken in this part of the Chapter is to know about the predominant path of diversification in each of the selected manufacturing industries. This objective is achieved through an empirical analysis of diversification moves of the sample companies whose comprehensive case histories of productive activities are given in the next Chapter.

In order to tame the study, the sample companies originally classified at a 2-digit level of detail have been grouped into three categories, namely, consumer goods industries, intermediate goods industries, and capital goods
industries. The first category includes industries like food products and beverages, tobacco manufactures, and textile mill products; whereas the second category comprises industries like paper, chemicals, and cement manufacturing. Industries in the third category are basic metals, metal products, general machinery, electrical machinery and appliances, and transport equipment. This categorisation is slightly arbitrary and is not altogether immune to objection as there are a few instances where industries like soap, sewing machines and bicycles produce consumer goods but are placed in the categories other than consumer goods industries and similarly, a few industries producing non-consumer goods have been placed in the category of consumer goods industries. This is because of their major industrial classification at a 2-digit level of detail.

A) **Consumer Goods Industries**

The empirical analysis as presented in the following pages, based upon available data about product diversification and functional relations among productive activities of the companies in the consumer goods industries, permits us to conclude that some of the industries of the group are not only towards decline or static growth but also that the Indian entrepreneurship in these industries is neither slack nor different in exploiting the new and growing opportunities available with the onset of industrial revolution in the country. In fact some companies have practically demonstrated
their enthusiasm and eagerness to navigate their ships of business activity over the uncharted oceans by taking up a package of non-traditional 'turn key' jobs of sophisticated engineering, chemical and electrical equipment industries. These ventures have sought foreign technical and financial collaboration with most successful companies of the United States, the United Kingdom, Japan and Germany.

Since "plodding does not go with enterprise (and) progress in business calls for mental and physical mobility, a controlled vitality and a programmed energy," companies have also shown their sharp foresight of pruning out the dead, uneconomically working and obsolete products and activities, and making an entry into a large number of virgin fields of manufacturing. In most of these new fields they bring first on the ground floor of new industries have an effective control over the market and have been rated as the biggest producers by the Monoplies Inquiry Commission, 1965. In fact companies which have moved on the diversified growth path, have not lived in the shadow of dead man's thought but have tried to seek constantly something new — new markets, new products, and new processes with a high sense of reality.

Though the case histories (Chapter IV) of the sample companies suggest that every diversified company has been induced by the idea of either utilising its by-products or

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16 Harry Miller, op.cit., p. 223.
wastes, and converting them into useful products, or utiliz­
ing its unused capacity of top-heavy-fixed assets, or 
avoiding rigorously competitive markets, yet, as the primary 
and the immediate aim of a business enterprise is to coordi­
nate and develop its existing activities to an optimum level, 
a high proportion of convergent moves, (that is, market-orien­
ted) have been undertaken by the companies since such 
movements are largely complementary and allied to their existing 
lines of activities.

In certain cases where the primary activity is 
seasonal in character, a set of other seasonal industries 
has been joined to the existing ones to offset the seasonal 
fluctuations. In certain other cases where the supply 
positions are erratic, but the final demand for the product 
gives a bright and promising outlook both in the present and 
future, successive or vertical moves towards the procurement 
of raw materials and supplies have been undertaken.

Under certain compelling circumstances particularly 
when the market is either saturated for the existing activi­
ties or the final demand is vanishing, lateral moves have 
been adopted. But wherever these conglomerate moves have 
been undertaken, the companies have demonstrated their 
ingenuity for careful study and keen judgement of economic 
variables.

Some diversification decisions, while according 
priorities to various schemes of expansion, have effectively
responded to the twin challenges of export promotion and import substitution. Particular reference may be made to inclusion of non-traditional items like chemicals, plastic goods, edible oils and canned fruits in the export items. The production of plastic (which has some significant properties such as lightness of weight, resistance to corrosion and wear, and also controllable thermal and electrical resistance) has been undertaken by a large number of companies in this group of industries. Because of its special features, plastic has become an effective substitute for leather, rubber and even non-ferrous metals, the indigenous supply of which is extremely scarce.

Further, by diversifying their existing production base, year after year, these companies have introduced and exploited new product designs and production techniques which is a sine quo non expansion of production and productivity in the industry. In certain cases the diversification moves have also developed a large number of ancillaries and suppliers, besides having given provocation and impetus for technical research and innovation.

Let us now see the position of the following industries on the basis of detailed case histories (given in Chapter IV) of the number of companies enumerated against them.
1. **Food and Beverage Products**
   i) Sugar 12
   ii) Edible oil 2
   iii) Flour milling 1
   iv) Beverage industries 1

2. **Tobacco Industries**
   4

3. **Textile Mill Products**
   21
   i) Cotton textiles 15
   ii) Rayon textiles 3
   iii) Jute textiles 3

**Sugar Industry** - The description of product relations of companies in this industry reveals that a large number of them have made two important diversification moves, one divergent in the direction of distillery products and the other convergent in the manufacture of edible oils. A good number of companies, because of their vast financial resources, have chosen to produce a large number of products which are not related in technology and marketing as they have entered into heavy engineering industries. Expansion or growth has been the chief motive for most of the diversification moves and in certain cases productive utilization of resources, maintenance of an assured source of basic supplied so that a strong competitive supply position could be maintained, have been the prompting factors. In certain cases declining profit margin products have been abandoned and are replaced by the products whose demand has steadily been rising and promises bright prospects. Lateral
diversification moves have also been adopted, but as their adoption has been very rare in the product strategies of the companies, one is compelled to conclude that there are more links than kinks in the product planning of the companies.

**Edible Oil Industry** - The product diversification moves of the two companies in this industry shows that both the companies, with a common base in oils, have undertaken a series of divergent moves but while selecting these moves, both have tried to match their existing market expertise with the new products.

**Flour Milling Industry** - The product composition of one company reveals that in order to gain expansion with stability by distributing risks over several products, the company had a series of convergent-cum-divergent functions. But in order to offset certain obsolete facilities and unfavourable circumstances, the company took a lateral move into an industry which promised a steady growing demand due to vast electrification of the country. While making this lateral move, the company tried its best to produce those electrical goods first which could be easily marketed to its old customers, for example, household consumers.

**Beverage Industry** - The analysis of product composition of the company in this industry reveals that due to its curiosity for charting on the path of expansion and its anxiety for offsetting the vanishing market for liquor, the company made a series of convergent moves (though a few are
also divergently and successively related) consistent with the objective of making use of its good will in the consumer market.

**Tobacco Industries** - Since tobacco when consumed in the processed form exerts a mild stimulating effect on the human system, it is both a rich man's solace and a poor man's comfort and hence is used and enjoyed by people in all walks of life all over the world. As there is a constantly increasing demand for tobacco products both within and outside the country and India being the third biggest producer of tobacco leaves in the world, all the companies of this industry are more or less specialized in tobacco processing. Two companies in order to have stable supply positions however, have taken successive functions by acquiring printing presses and manufacturing laminated paper products.

**Cotton Textiles** - The analysis of product structures of the companies in the industry suggests that two important moves have been undertaken by a large number of companies. One is a convergent move in the direction of synthetic fabrics and the other is a successive move towards textile chemicals.

The first move has largely been adopted to keep pace with the technological developments and for maintaining a strong competitive capacity. The persistent cotton shortages which have been threatening the cotton textile industry with
either complete closures of the units or with the curtailment in the working hours of the units, have also been the important factors to prompt the existing units to diversify their activities into filament rayon fabrics.

In fact as the cotton textile industry is one of the oldest in the country, the ownership of which is so well spread throughout the country that the largest of units under the management of one industrial group does not amount to even five per cent of the industry. The intensity of competition (both internally and in the international market) is, therefore, extremely severe. With this severity of competition, no textile unit worth its salt can afford to be a passive spectator to the long strides of technology which is generating a series of cotton textile substitutes characterised by features such as wash-n-wear, dip and dry. In the face of such substitutes, the margins are always to be low unless plant, machinery, methods, or products are kept abreast of time.

Two companies, namely Bombay Dyeing & Mfg., and Madura Mills which are highly concentrated in the cotton textile goods have given the following reasons for their emergence from the fire of intense competition as finely welded and shining organisations.

"Our firm has a reputation as spinners and doublers of high quality grey cotton yarns in all overseas markets, particularly in United Kingdom, where our sales represent over 60% of our total of India's export to that market. Equally we have a good
markets in U.K., U.S.A., for our industrial products and drills which we started producing two years ago on automatic looms. Quality is our main concern and high quality of our products is always maintained through supervision and through numerous tests carried over in our modern and well equipped Central Testing Laboratory.\textsuperscript{17}

"Country's premier textile unit \textit{Bombay Dyeing and Mfg. Co.,} has considerably renovated its machinery to produce cloth of finer and superior texture. Its management is an enterprise which has shown single minded devotion to cotton textiles and has tried hard to augment India's export capacity by following a far sighted policy in regard to plant re-equipment and marketing. The material reward has of course, been relatively modest, as compared with the gains that are being made by some other cotton mills that took to other lines of manufacture including rayon."\textsuperscript{18}

Factors which prompted the second path of diversification i.e., vertical integration by manufacturing basic supplies of chemicals are: First, there is a feeling that a timely, adequate and at reasonable cost, the supplies of basic raw materials is necessary for expansion and stability of a business. Second, due to slender foreign exchange resources there are heavy import restrictions on chemicals. This has caused scarcities of chemicals in the market. Third, in view of the ambitious expansion plans of the textiles industries and other chemical consuming industries, there is a growing demand for heavy chemicals and this in turn

\textsuperscript{17} Madura Mills Management's letter No. H.O. 048/07 dated 4th Dec., 1965.

\textsuperscript{18} Extracted from Company chairman's statement at 1961, annual general meeting of the company.
promises a good return on capital investments. Fourth, administration of differential government fiscal measures such as extra-fast depreciation, heavy development rebates, tax holidays, export concessions and cheap credit facilities have also eased the flow of capital into this key industry.

There are also instances where a few big companies either directly or through acquisition of subsidiaries have taken up the manufacture of textile, rayon and chemical accessories, and other heavy engineering equipment.

**Rayon Textiles** - As this industry is new to the country and has been showing signs of healthy growth, the diversification moves of the companies of the industry reveal that all of them have vertically integrated the production of raw materials such as basic chemicals.

**Jute Textile** - The analysis of diversification moves of the three companies indicates that the companies, instead of selecting competitive areas where they were to devote sufficient resources to the development of each type of product to maintain their competitive position in the market, have diversified into the areas which are characterised by seller market and state protection. But while diversifying, all of them have moved in a rather heterogenous manner but in different directions. This is largely due to acute problems of the jute industry such as the problem of an adequate supply of the right quality of jute fibre at a
reasonable price, potential competition from Pakistan (which with its readily available raw jute, is vigorously developing its jute industry), revolutionary improvements in chemical technology, which is developing substitutes\textsuperscript{19} for both sacking and hessian, and erratic fluctuations in the availability of jute fibre due to unfavourable climatic conditions. In selecting diversification strategy each company has selected the area which, with the onset of industrial resurgence and dynamic changes in agricultural production practices in the country, promises enormous current demand as well as future market potential.

ii) Intermediate Goods Industries

The product composition of the companies in this category of industries suggests that the companies, by and large, are specialised in a relatively few broad areas of activity because they have rarely crossed the boundaries of its existing field of operation considered at a wider level (i.e., 2-digit classification). Since in most of the industries of this group, the degree of concentration is high, a large number of companies have diversified vertically to take up the production of raw materials or intermediaries. Whenever the companies have encountered competitive tendencies, these have adopted "growing from within" strategies by adopting divergent diversification paths which commensurate with the company's know-how, materials and plant capacities. In chemical and paper-industry, the companies have also non-rusting adopted convergently related diversification paths to supply full range

\textsuperscript{19}Which are non-rusting in quality, light in weight and equally durable.
of complementary and competitive products so as to meet the conveniences and requirements of their diversified dealers.

In certain cases the policy of the government regarding controls particularly the price and distributive controls, has stimulated the companies to step into the non-controlled areas of activity which are not only consistent with the available production facilities and technology of the companies but also provide an outlet of selling the basic and primary produce (of course in a modified or further processed form), at remunerative prices.

Further, as most of the industries are new and for their increasing efficiency and growth are getting enormous protection from the tariff commission besides having various other motivations and encouragements in the form of differential tax and credit facilities, the companies of these industries find promise in their penetration into the divergently related diversified ventures where they, despite their steady increase in the output, have failed to catch up the demand which is rising at a logarithmic scale in the bustling industrial atmosphere of the country.

In the chemical and paper industry, special encouragement to develop import substitutes has also given stimulus to the companies for adding new dimensions either by taking up vertically integrated moves towards the manufacture of basic imported raw materials or by adopting divergent
strategies of manufacturing the allied products which are not currently being produced in the country.

Though some companies in the cement industry have taken up the production of engineering goods, yet this trend of successive diversification towards the manufacture of machinery is not as common as it has been observed in the traditional industries like sugar and textiles.

The industrywise position, on the basis of product structure of companies (which are enumerated as under and discussed in Chapter IV) of the following industries of this group is discussed below:-

i) Paper and paper products industry 7
ii) Chemicals and chemical products industry 8
iii) Cement industry 7

**Paper and Paper Products Industry**

The product structures of companies in this industry reveal that most of the companies have not crossed the boundaries of their primary field, namely pulp, paper and board, except that they have vertically integrated the manufacture of caustic soda, a basic chemical for paper industry. Most of the divergent moves within the broader boundaries of the industry have been prompted by factors like developing a strong competitive supply position by offering a complete range of products and several close substitutes, meeting the conveniences of diversified dealers,
making use of internal technical research, and realising maximum advantage from different fiscal policies of the Government.

Again, since there is also a high degree of concentration in various products of the industry, except writing and printing paper, wrapping paper, and straw boards, there is a seller's market with a stable demand and a promising future. The companies, therefore, have no incitement to diversify their activities except in the vertical direction by building up a sound and stable supply position for their basic raw materials. But two companies of the industry have adopted lateral moves, one by acquiring subsidiaries and the other by moving itself with a view to reaping heavy profits from the industries entered.

**Chemicals and Chemical Products Industry**

The analysis of product composition of companies in this industry reveals that diversification based primarily on a high degree of competence and technical knowledge is the characteristic of the largest companies. As, by and large, the companies of this industry have not stepped outside the fields connected with chemical processing technology. Most of the sample companies have a series of divergent moves in heavy industrial chemicals, the market for which promises bright prospects of good return due to vigorous programs of expansion in industries like textiles, rayon, soap, vegetable
oil refining, paper, plastic, aluminia, and petroleum.

The study also asserts that the recent moves of diversification by the companies are in the direction of the manufacture of sophisticated and fine chemicals. There are numerous reasons for this trend and the most important of them are: First, till recently India was virtually a bottler and processor of imported drugs and in the face of present shortages of imported chemical due to the controlled import policy of the government, these ventures towards import substitution gave a big fillip to diversification as the future market prospect for the products are more promising. Second, most of the diversification moves are commensurate with the pace of technological revolution which is silently going on in the industry and in the economy. Third, since for a break through there can be no questioning of the high priorities that the Government is according to agriculture and health, the diversification moves towards fertilisers, pesticides and insecticides have, therefore, reached new heights. Fourth, in certain cases vigorous diversification moves have been adopted vertically, divergently and convergently when the outlook of the companies became obscure due to the development of keen competition in certain fields.20

20"The important product of caustic soda under this head (Alkalies and allied chemicals) had as many as 21 producers with the welcome result that the concentration was absent. The private sector had as many as 23 producers of super phosphates with the welcome consequence that there was no concentration. There were 21 producers of hydrochloric acid." — Report of the Monopolies Inquiry Commission, (1965), p. 20.
Cement Industry

The product composition of companies in this industry suggests that the companies are mainly concentrated in the production of cement and cement products because of a stable and increasing demand for such products due to enormous construction activities in the different sectors of the economy and also because of monopolistic tendencies in the market for such products since the degree of concentration for the industry is comparatively high.

In fact while comparing the per capita consumption of cement in India which is 39 lbs., against 492 lbs., in Japan, 692 lbs., in United States, 703 lbs., in Italy, 1012 lbs., in West Germany, and considering the pace of industrial expansion, housing and irrigation, the demand for cement will rise much more than the installed capacity and it will be a long time before the supply can meet the growing demand at any point despite the establishment of new units and expansion of existing ones. It is, therefore, felt that for some time, the companies of this industry will continue to concentrate on cement production which is playing a significant part in constructional activity and is bringing a new era of modern architecture.

Since for a long period the cement manufacturing has been subject to price and distribution controls and as "there is a growing recognition in India that prices fixed for basic
commodities such as coal, iron and steel, and cement are far too low*, the divergently related diversification moves to the cement manufacture are gaining momentum in order to seek an outlet for the cement at remunerative prices. Further, the companies are penetrating in to the areas where not only the market for their products is free but also promises better expectations due to growth of iron and steel industry, top priorities on irrigation and soil conservation programmes in the agriculture sector, and also the increasing responsibilities of the public institutions to undertake activities like water supply and sanitation.

Some companies under the stimulus provided by war vertically diversified to undertake the production of cement mill machinery and later on had a series of divergent moves from this base so as to have an optimum utilisation of heavy workshop built-up capacities. Restrictions on expansion of capacities in the existing primary fields in order to check the seller concentration in the market also has made companies seek new areas for their growth and development.

iii) Capital Goods Industry

An analysis of product composition and interse activity functional relations of companies in this category of industries asserts that the companies have established and maintained a basic position with respect to the use of certain types of resources and technology and the exploitation
of certain types of markets. Although they have rarely confined themselves to a narrow range of products, they have exploited the economies of production, organization, and growth, and have taken advantage of monopolistic and quasi monopolistic positions in a small number of family of well defined areas.

In ferrous and non-ferrous basic metal industries, which are vital for industrial development, successive functions i.e., vertical integration of various production stages (such as mining, smelting, casting, forging and fabrication) are very common; whereas in the metal product industry, market-oriented convergent functions, which are either competitively (being substitutes) or complementarily (being jointly demanded) related, are predominant. In the former case a good number of divergent diversification moves have also been adopted with a view of having productive utilisation of waste or by-products of the main manufacture operations; whereas in the latter, the companies have undertaken successive diversification moves by installing their own casting and forging capacities.

In the engineering industry, which until recently has been importing a major share of its requirements of machinery, enterprises poised with vigorous plans of growth and diversification have chartered on divergent diversification paths. These moves have been adopted not only with the idea of optimally utilising the existing heavy workshop
capacities but also of manufacturing substitutes for imported machinery, particularly the precision and sophisticated machinery, for all those industries which are characterised by a high rate of growth and whose both immediate and future outlook is very promising. While undertaking these divergent diversification moves, the companies have also given priorities to convergent moves of manufacturing a complete range of plants, machinery, ancillaries and instruments of their principal clients to whom their services commence with the blue print stage and end with the final takeover by the customer of a fully commissioned factory. Again, in the designing of diversification strategies companies have also adopted successive functions by installing versatile foundries, so as to maintain self-sufficiency in their casting requirements.

In the electrical industry, the cable manufactures have not highly diversified their activities except that in the face of high competitive market conditions these have dispersed their business risks by reshaping and redesigning their produce so that they could differentiate their products from various uses and markets. But the mono-cable manufacturers of heavy electrical industry have adopted a series of full convergent moves for meeting the requirements of users of

21 Thomas A. Studt, defines full convergence as a business strategy, "When existing (or similar) production and marketing facilities are used for new products". Thomas A. Studt, op.cit., p.
electricity, particularly the generators and distributors of electricity. In the light electrical industry where the technological base is more flexible and there are more contacts with the users rather than with the producers of electricity, the companies have adopted a series of convergent functions but at the same time some divergent moves into the manufacture of precision electrical instruments have also been adopted.

In the transport equipment industry, the unique feature of the automobile industry, which always has a perpetual backlog of demand, is that successive functions (particularly of manufacturing components and parts of commercial and passenger vehicles and maintaining intricate casting and forging capacities) have been undertaken by the companies. In certain cases, the companies, either due to uncertainty in the import of certain vital components whose indigenous manufacture has not commenced because of lack of technical knowhow and patent restrictions, or unremunerative prices of the goods for which there is a state monopsony, or developing export potential commodities for earning foreign exchange (for utilising the earnings for import of their primary requirements of plant, machinery and other supplies of components) have divergently diverted their investment funds and production capacities to the manufacture of heavy mill and turnkey job plants for which there is high demand and a seller market. In this industry, there is
a solitary instance of a sample company which because of its subsidiaries and sub-subsidiaries is operating in a large number of industries (traditional as well as modern), by manufacturing products which, besides being divergently and convergently related, are also conglomerate in nature. In the cycle industry which has ceased to be in the era of seller market, companies have adopted divergent, convergent and even lateral diversification moves into light engineering industry so as to achieve growth and utilise the existing technical skill and workshop facilities.

The analysis of the following industries of this group (on the basis of case histories as discussed in Chapter IV) composed of the number of companies enumerated against them is as follows:-

1. Basic metal industry 8
2. Metal products 4
3. General machinery 7
4. Electrical machinery and appliances 9
5. Transport equipment 9
   i) Automobile industry 6
   ii) Railway rolling stock industry 1
   iii) Cycle industry 2

Basic Metal Industry

Since the consumption rate of ferrous and non-ferrous metals is always keeping ahead of the metal production in India and as this trend is likely to continue for some
more years to come, the companies, by and large, in this industry have not contemplated crossing their industrial boundaries except to vertically integrate those ventures which assure a perennial flow of supplies so as to feed heavy capital intensive plants of the industry. As most of the metals are general purpose metals, the companies have adopted a few sets of divergently related diversification moves so as to cater to the needs of various growing industries and also to have an effective use of by-products and wastes. Thus specialisation broadly defined is more the rule than the exception with the companies of this industry.

Metal Products

The product composition of companies in this industry reveals that most of the diversification functions undertaken by them are convergently related i.e., market oriented. In certain cases, companies have developed even new technologies or have used new materials so as to manufacture goods which are either complementary or competitively related with the primary products.

22"Aluminium (because of its non-rusting quality, strength when suitably alloyed with small quantities of other metals, light weight and good electrical conductivity) can be called as a general purpose metal and its uses both as a metal and in the form of strong alloys are innumerable. They are in the field of transportation — air, rail, road and water, for overhead transmission lines; in the chemical, brewery and food industries; in building and architecture; for packing and insulation in the form of foils; for printing in the form of powder and paste; and in the kitchens in the form of utensils". Chairman, Aluminium Corporation of India.
Companies also have divergently diversified their production either to make use of their materials or their heavy built-up capacities so that they could distribute their risks over a large number of markets. A few instances of lateral diversification moves also are observable, but these moves have not crossed the boundaries of the metallurgical engineering industry.

General Machinery

The activities of sample companies of this industry indicate that the chief characteristic feature of the companies is that they have not derived from a miscellaneous collection of resources in many fields but have defences in depth because the companies of the industry are largely operating in fields of heavy engineering industry. Since the enterprises are poised for vigorous plane of growth, they have elevated themselves into highly sophisticated diversified engineering complexes.

As a strong and well founded engineering base is necessary for a rapid industrial development of the country, and further as the general economic growth pattern both vertical and horizontal is directly correlated to the stage of development of engineering industry, the planning authorities of the country have given a top priority to the development and diversification of this industry because it was very long ago that India was importing a major part of
its requirements of machinery for various fields of manufac-
turing. Being induced by the growing demand for machinery as a con-sequence of wide development and expansionary programmes of various sectors of the economy, and at the same time giving an effective response to the twin challenges of import substitution and export promotion, the companies of this industry have launched, under an umbrella of various incentive schemes expressed in terms of differential fiscal and credit policies, a series of divergent, successive and convergent diversification moves.

While assigning priorities to diversification moves, almost all the companies either because of winning growth or as a consequence of severe competition in some of their primary activity areas or due to an onset of recent recessionary trends in the manufacturing segments to which the companies had initially been catering, have given top priority to the divergent moves and have entered into the engineering areas where the market structures have been imperfect and monopo-
listic and the demand conditions are highly promising about their growth and stability. The second priority has been given to vertical integration or successive functions by developing casting and forging capacities for fabricating the gigantic machines and plants for traditional as well as newly developing industries. The companies have given a third priority to convergent moves, that is, developing a full range of complementary machines and machine tools of
the industries to which they had already been catering. In certain cases in order to have an outlet of their products, the companies have undertaken forward successive functions of engineering jobbings such as project installations and consultancy services.

Electrical Machinery and Appliances

The study of product composition of companies in this industry yields that since electric power is one of the prime movers and motive forces to rapid industrialisation, and despite spectacular increase in electricity generation and utilisation over the past two decades or so, India's power supplies still lag far behind its requirements, the companies have largely confined their manufacturing interests in the vicinity of their primary industry.

In heavy electrical industry, the cable manufacturers while keeping in view the additional electric generating capacity and an expected increase of mileage of transmission lines in the country, have not widely diversified except that these companies either prompted by the non-availability of certain basic raw materials, or to exploit the varying uses of cables and wires so as to distribute their risks over various markets, have undertaken divergent moves to produce different forms of cables and wires either insulating them or giving them some different process treatments.

In the face of intense competition and saturated
demand for some of their products, the non-cable units of the industry have adopted a series of convergent moves particularly in the direction of meeting the growing requirements of the country in its process of electrification. Some companies have also adopted vertical paths of diversification by manufacturing either the basic raw materials or the semi-fabricated products so as to have a perennial flow in the operations of their heavy built-up capacities. Similarly to seek an outlet for the products, almost all the cable and non-cable manufacturers have undertaken electrical installation jobbings. One company has also taken up the manufacture of cable making plants such as rolling mills and wiring mills. Some of the products manufactured by the companies are complementarily related in demand and hence are convergently in relation. In order to avoid the accumulation of unsold stock, the companies have adopted "after sales service" moves by undertaking a successive function of electrical installation jobbings.

In light electrical industry, the companies are comparatively more diversified than those in the heavy electrical industry. This is because of their flexible technology and more contacts with the consumers rather than with the producers of electricity. Since the diversification strategy of the companies in this industry has also been to manufacture goods which are complementary in demand with
one another, most of the diversification moves are concentric in nature as these are based upon common market expertise and electrical technology. In certain cases, the companies have also moved verticularly to integrate the manufacture of supplies and raw materials with their main products.

Transport Equipment Industry

i) Automobile Industry - An analysis of product composition of companies in this industry reveals that in the industry (which till recently, in India, was characterised by assembly vehicles imported in a knocked down condition and has constantly been experiencing a perpetual backlog of demand for commercial and passenger vehicles) the companies have always been endeavouring to enhance the indigenous content of their automobiles which are being produced in different forms, models, and capacities to meet the varying requirements. Besides taking a series of these successive functions to attain self-sufficiency in the supply of automobile parts and components, another successive function in the direction of integrating casting and forging capacities has also been very common. In certain cases, a series of divergent moves towards manufacture of heavy mill machinery,

23"... concentric diversification has a measure of common thread with the firm either through marketing or technology or both". H. Igor Ansoff, Corporate Strategy, op. cit., p. 135.
sophisticated engineering goods and important industrial tools have emanated from the existing casting and forging facilities particularly with a view of utilising the excess heavy built-up plant capacities. Some of the divergent moves have also been prompted to earn foreign exchange so as to import with the exchange earnings certain components which, either due to lack of local technical knowhow or patent restrictions, could not be indigenously manufactured. Instances are also not uncommon when the divergent moves were adopted due to uncertainty and lack of demand orders from the public sector for some of the primary items of manufacture.

Thus in this industry which is yet in its infancy and teething period, most of the activities have stemmed from its basic area of specialisation, that is, engineering for mass production. But, in certain cases either by the acquisition or the setting up of subsidiaries, lateral functions have also been adopted to avail the opportunities of meeting the rising demand of the products and availing high profits.

ii) **Railway Rolling Stock Industry** - In this industry, the one sample company, with a view of achieving expansion in its manufacturing business, to distribute risks over various trades, and to utilise excess workshop capacities, has taken divergent diversification moves in the areas which are very akin to the railway and automobile industry.
Bicycle Industry - In bicycle industry, the two sample companies after having a series of successive functions in the manufacture of cycle components and accessories diversified convergently-cum-divergently and even laterally with a view to expand their manufacturing business as the scope for such expansion in the bicycle industry became dimmer due to its increased severity of market competition and excess installed capacity.