CHAPTER 2.

CONCEPTUAL FRAMEWORK AND ANALYSIS OF

MACRO ENVIRONMENT
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Conceptual framework and analysis of macro environment

This chapter is devoted to clarify the concepts and terms; Ancillarisation, Ancillary unit, Exclusive ancillary unit, Parent unit, Buyer-supplier relationship, Buyer action attributes and Supplier action attributes. This chapter also gives the analysis of macro environment on ancillarisation.

The ancillarisation in Japan, which has provided a constructive relationship between the parent-firm and its ancillary, is discussed. Korea, which has successfully emulated the Japanese practice of ancillarisation, is also analysed. Ancillarisation in developing countries in general and ancillarisation in India in particular are analysed. Role of Governmental agencies in general and effectiveness of institutions such as of Sub-Contract Exchange in promoting ancillarisation in particular also have been dealt with.
2.1. Ancillarisation

Ancillarisation is a sub-set of Sub-contracting. It refers to a type of inter-firm relationship between the buyer and the supplier with guaranteed steady off-takes and usually implies a continual relationship involving recurrent transactions (UNIDO). The period of relationship between the parent and ancillary taken in this study is minimum five years.

2.1.1. Ancillary unit: An ancillary unit as defined by the Government of India is an "undertaking having investment in fixed asset in plant and machinery not exceeding Rs 1 crore and engaged in a) manufacturing of parts, components, sub-assemblies, tooling or intermediaries or b) supplying not less than 50% of its production to one or more other industrial undertakings. The principal customer is termed as Parent unit.

In this study the term "ancillary unit", is used for the ancillary of Private Sector Enterprises and the term, Exclusive Ancillary unit (registered with DIC) is used for the ancillary unit of Public Sector Enterprises, as ancillary units. In cases where the ancillary units are having more than one buyer, the principal buyer is considered as parent unit and is abbreviated as B1 and other buyers are abbreviated as B2 and B3 in the order of association.
Ancillary units usually undertake manufacturing only on receiving orders from their parent units. Normally the items manufactured by the ancillaries are not patented; nor do they produce for the ‘market’, which can be purchased ‘off the shelf’. In this sense ancillary units are not ‘independent’ producers but appendages to their parent firms.

2.1.2. Types of Ancillarisation - Depending upon the stages at which ancillarisation is undertaken, it can be classified as a) Component, b) Activity, c) Assembly and d) Product (1).

a) Component - A parent unit limits its activities to the manufacture of critical (technology-intense) components and assembly of a final product. Production of other parts and components, which are not in line with the core activities of the firm, are given to others. But the parent unit has retained the product designing and final testing in-house. Depending upon the closeness of inter-firm relation the parent unit provides raw materials, tools and equipment and testing facility to the ancillary units. This type of arrangement is quite common in the engineering industry.

b) Activity - Some production processes consist of distinct activities which if given to ancillary units reduces cost of production. These activities range from highly labour intensive job-work. In this type of arrangement parent unit normally provides raw materials and equipment to the ancillary units. It is widely prevalent
in the railway industry where all the machine operations are usually done through ancillary units.

c) Assembly – In the industry groups where final product consists of a set of highly technology intensive critical parts and components, parent unit concentrates on its specialisation, the final assembly is given to the ancillary units. For example, production of electronics components like chips, capacitor, transistor, TV picture-tube etc. are capital intensive and require high technology, whereas, final assembling of a TV set or a computer set is labour and skill intensive. The parent firm supplies the components to the ancillary unit and takes away the assembled products for marketing under its own brand name.

d) Product – Under this arrangement the ancillary units manufacture the complete product under its own brand name. The parent unit generally controls product design and quality. The examples in the Indian context are valves and hydraulic pumps. BDK valves in Hubli, has number of ancillary units, who manufacture valves, the parent unit, BDK valves market the product under its own brand name. Product design and quality are controlled by the parent unit (BDK valves).

2.2. Buyer-Supplier relation (Inter-firm linkages)

The various linkages that the small enterprises can establish among themselves and with large and state-owned enterprises, are essential factors for their growth and
competitiveness. Industrial sub-contracting and outsourcing are modern and efficient ways to organise industrial production. New forms of industrial sub-contracting, called "ancillarisation", are based on the complementarity between large and small enterprises involving them from the very early stages of the production cycle (design, testing and prototype). These forms tend to become more stable, more lasting with a more equitable distribution of responsibilities (risks and profits) between the various partners.

Almost every company purchases products, supplies or services in an amount that frequently equals around 60% of its sales. Traditionally many of these companies have followed "lowest bidder" practice where price is the critical criteria. The focus on price is changing as companies realize that careful concentration of purchases, together with stable relationships, will reduce costs and improve profits. A strategic relationship is emerging between a growing number of buyers and suppliers.

Motorola has developed a system to promote buyer-supplier relationship. The system is based on a basic economic principle: win-win strategy. Motorola has begun to market itself as a customer. The company's director of material and purchasing says, "If the sauce is good for the goose, it should be good for the gander, and we are genuinely trying to co-operate, collaborate and do some strategic things with our suppliers. Our goal is to become a world-class customer and that means it is important for us to learn, what the buyer needs to do in order for suppliers to see us as a world-class customer".
Buyer-supplier relation is of crucial importance for the success of ancillarisation. Long term and quality relationships can be established only when the interests of both the parties are met. The varying degrees of Buyer-supplier relationships measured in the study are high, medium and low as perceived by the ancillary unit.

2.2.1. Buyer action attributes and Supplier action attributes—The factors which promote the process of ancillarisation is identified by smooth transactions between buyers and their suppliers and is termed as Buyer action attributes and supplier action attributes. These attributes are developed by Dixit Garg and others suitable to Indian context (as mentioned earlier), and are slightly modified in order to facilitate measurement. This is depicted in fig 2.1.

Fig 2.1 Degree of ancillarisation

Source: Dixit Garg & S G Deshmukh, Vendor Relations in managing faster supply chain
2.2.2 Buyer action attributes - The Buyer action attributes are measured for the parent unit. Based on the previous studies, ten attributes, which are important for promoting ancillarisation, are taken in this study. These attributes are the appropriate actions to be taken by the parent-firm/buyer for developing sustainable relationship with the ancillary/supplier for successful implementation of ancillarisation from its side. Each attribute is classified into three classes: a, b and c. Here a denotes that, the particular attribute is significantly present, b denotes that the particular attribute is moderately present and c denotes that the particular attribute is insignificantly present in the parent unit. These ten attributes are measured for the parent unit/buyer as perceived by the ancillary/supplier and are given:

1. Economic related attribute - This covers the importance given to the pricing policy and is measured in terms of Price revision Practices followed by the parent firm. Periodic price revision (upward or downward) by the parent-firm will help the ancillary to understand the dynamic changes in the element of cost. This is classified into three classes a, b and c and is given below.

a) Within 1 year
b) 1 to 3 years
c) 3 years and above.

a = attribute is significantly present, b = attribute is moderately present, c = attribute is insignificantly present.
Here the parent-firm, revising price within a period of one-year (a), indicates that Economic related attribute is significantly present. Whereas the parent-firms revising price between 1 to 3 years (b), indicates that economic related attribute is moderately present and the parent-firms revising price for a period 3 years and above (c) indicates that the economic related attribute is insignificantly present.

2. **Supplier evaluation attribute** - This covers the importance given to evaluation of the supplier by the parent unit. An effective and structured performance measurement system in the result areas such as quality, quantity, delivery, price etc. has to be designed for supplier evaluation and it is necessary to evaluate the supplier on continuous basis and give feedback to the supplier on the performance. This continuous evaluation system by the buyer helps the supplier to understand the areas, where improvement is needed and to grow on a continuous basis. This is classified into following three classes,

a) Continuous
b) Occasional
c) Nil.

\[
a = \text{attribute is significantly present, } b = \text{attribute is moderately present, } c = \text{attribute is insignificantly present.}
\]

3. **Supplier audit attribute** - Executives of buying company should periodically visit and audit supplier’s plant. Supplier’s plant audit by the buyer helps the supplier to make
appropriate investment in plant and machinery on a continuous basis in order to meet the requirements of the buyer. This is classified into following three classes,

a) Within 1 year
b) Occasional
c) Nil

\(a=\) attribute is significantly present, \(b=\) attribute is moderately present, \(c=\) attribute is insignificantly present.

4. **Convenience related attribute** - Production schedule from the buyer must be given frequently to supplier to develop confidence and to make regular commitment to the buyer. In such circumstances supplier will earmark fixed amount of production capacity to the buyer. This is measured in terms of frequency of production schedule given. This is classified into following three classes,

a) Within 15 days
b) 15 days to 1 month
c) 1 month and above

\(a=\) attribute is significantly present, \(b=\) attribute is moderately present, \(c=\) attribute is insignificantly present.

5. **Finance related attribute** - This is related to duration within which the payment is made by the (payment pattern) parent-firm to the ancillary for the supplies made. The payment
made by the parent unit to the ancillary at the earliest will help the ancillary units to survive and grow. This attribute is measured in terms of duration within which payment is made by the parent-firm to the ancillary. This is classified into following three classes,

a) Within 30 days
b) 30 to 60 days
c) 60 days and above

\[ a = \text{attribute is significantly present, } b = \text{attribute is moderately present, } c = \text{attribute is insignificantly present.} \]

6. Reliability related attribute - The undue delay in payment by the parent-firm creates poor working conditions at the supplier's place and the ancillary unit may easily lose the investments and may not survive. Buyer has to meet the agreed credit period and always make payment to the suppliers within the agreed credit period. This attribute is measured in terms of meeting the agreed credit period for the supplies made by the ancillary to the parent unit. This is classified into following three classes,

a) Always
b) Occasional
c) Nil

\[ a = \text{attribute is significantly present, } b = \text{attribute is moderately present, } c = \text{attribute is insignificantly present.} \]
7. **Assistance related attribute**: the buyer should assist the selected suppliers in required areas such as financial and technical. The suppliers consider financial assistance more important than the technical. This is classified into following three classes,

a) Financial Assistance  
b) Technical Assistance  
c) Nil

\[ a = \text{attribute is significantly present}, \quad b = \text{attribute is moderately present}, \quad c = \text{attribute is insignificantly present}. \]

8. **Training related attribute** - Efforts have to be made by the buyers to develop network of reliable suppliers. This can be achieved by giving training in required areas to the selected suppliers. In order to make the training effective, the training should be on a continuous basis. This is classified into following three classes,

a) Every Year  
b) Occasional  
c) Nil.

\[ a = \text{attribute is significantly present}, \quad b = \text{attribute is moderately present}, \quad c = \text{attribute is insignificantly present}. \]

9. **Stability related attribute** - Production schedule of the buyer must be stable and has to be intimated to supplier in advance. There should be little variation in quantum of orders
given to the supplier by the buyer. Lesser is the variation in the quantum of orders stable is the relationship. This attribute is measured in terms of variation in quantum of orders. This is classified into following three classes,

a) 0 - 10%
b) 10% - 20%
c) 20% and above

attribute is significantly present, attribute is moderately present, attribute is insignificantly present.

10. Dependability related attribute - Buyer has to confine to the number of suppliers for one part. It has become a good practice for the buyer to show more inclination towards single-sourcing. Rationalisation of supplier base will lead to increase in the share of business to the selected suppliers. This attribute is related to the rationalisation of the supplier base. This attribute is measured in terms of component supplier ratio. This is classified into following three classes,

a) 1:1
b) 1:2
c) 1:3 and above.

attribute is significantly present, attribute is moderately present, attribute is insignificantly present.
2.2.3. **Supplier action attributes** - The supplier action attributes are measured for the ancillary unit. Based on the previous studies, ten attributes, which are important for promoting ancillarisation, are taken in this study. These attributes are the appropriate actions to be taken by the ancillary/supplier for developing sustainable relationship with the parent unit/buyer for successful implementation of ancillarisation from its side. Each attribute is classified into three classes: A, B and C. Here A denotes that, the particular attribute is significantly present, B denotes that the particular attribute is moderately present and C denotes that the particular attribute is insignificantly present in the ancillary unit. These ten attributes are measured for the ancillary unit/supplier and are given below.

1. **Technology related attribute** - This is related to type of technology available at the supplier’s plant. It is necessary the supplier unit should continuously upgrade and have latest technology in order to survive and grow in a global market. This attribute is classified into following three classes,

A. CNC machines

B. Non CNC machines and less than 10 years old

C. Machines 10 years old and above.

\[ A = \text{attribute is significantly present}, \quad B = \text{attribute is moderately present}, \quad C = \text{attribute is insignificantly present}. \]
2. **Reliability related attribute** – It is necessary for the supplier to add value to the supply chain. Lesser the rejections faster the supply-chain. This is measured in terms of percentage of rejection rate of the supplies made by the ancillary. This attribute is classified into following three classes,

A. 0 to 2%
B. 2 to 5%
C. 5% and above.

*A = attribute is significantly present, B = attribute is moderately present, C = attribute is insignificantly present.*

3. **Commitment related attribute** - It is necessary the supplier should able to meet the agreed delivery schedule in order to achieve Just-in-time in manufacturing. This is measured in terms of commitment shown by the supplier in meeting the agreed delivery schedule. This attribute is classified into following three classes,

A. On time
B. Frequent reminders from the buyer
C. Order cancellation due to delays.

*A = attribute is significantly present, B = attribute is moderately present, C = attribute is insignificantly present.*
4. **Service related attribute** - Supplier has to remain in touch and interact with the executives of buying company and take care of their requirements on a regular basis in the interest of both. This is possible when the supplier has invested in an appropriate communication mode. This attribute is classified into following three classes,

A. Internet  
B. Fax  
C. Phone  

\[ A = \text{attribute is significantly present}, \quad B = \text{attribute is moderately present}, \quad C = \text{attribute is insignificantly present}. \]

5. **Capability related attribute** - Supplier has to invest in plant and machinery on a regular basis. Periodic investment in plant and machinery will build the capability at the supplier’s firm. This attribute is measured in terms of time period required for investing in plant and machinery and is classified into following three classes having different weights.

A. 0 to 5 years  
B. 5 to 10 years  
C. 10 years and above.  

\[ A = \text{attribute is significantly present}, \quad B = \text{attribute is moderately present}, \quad C = \text{attribute is insignificantly present}. \]
6. **Human Resource related attribute** - It is necessary the supplier should maintain stable work force, since the manufacturing is shifted to the supplier's end. In order to maintain a stable work force, appropriate wages should be paid to the work force. This attribute examines, whether wages and salaries are paid to the work force in accordance with law or not. This attribute is measured in terms of system followed to make payments (incentives) to labours. This attribute is classified into following three classes,

A. As per law plus allowances
B. As per law
C. Not regularly paid.

\[ A = \text{attribute is significantly present}, \quad B = \text{attribute is moderately present}, \quad C = \text{attribute is insignificantly present}. \]

7. **Dependability related attribute** - It is necessary to reduce the lead-time for the supplies made for achieving faster supply chain. This attribute is measured in-terms of lead-time required for the supply. The lead-time depends on the type of product manufactured. In this study the lead-time is compared for the products, which are similar in nature. This attribute is classified into following three classes,

A. 0 to 7 days
B. 7 to 15 days
C. 15 days and above.
8. **Quality related attribute** - Efforts should be made to maintain consistency in quality requirements of the buyer. This can be achieved by investing in Quality assurance programme and this attribute is measured in terms of type of quality assurance programme practiced by the ancillary. This attribute is classified into following three classes,

A. ISO 9000
B. SQC (Statistical Quality Control)
C. Written instructions.

9. **Value related attribute** - Efforts should be made by the supplier to add value on continuous basis by investing in productivity improvement programmes on a continuous basis. This is measured in terms of frequency of productivity improvement programmes undertaken by the supplier. This attribute is classified into following three classes,

A. Continuous
B. Occasional
C. Nil
A = attribute is significantly present, B = attribute is moderately present, C = attribute is
insignificantly present.

10. Caliber-related attribute - Efforts should be made by the supplier in adopting
appropriate maintenance system in order to maintain the continuity of production without
any interruption. This can be achieved by adopting proper maintenance system. This
attribute is measured in terms of type of maintenance system followed by the ancillary
unit. This attribute is classified into following three classes having different weights.

A. Preventive
B. Predictive
C. Breakdown

A = attribute is significantly present, B = attribute is moderately present, C = attribute is
insignificantly present

The buyer action attributes of the parent unit and supplier action attributes of the
ancillary unit will result in frequent and reliable deliveries, small shipment size in
exact quantity, reduced delivery lead time, elimination of receiving and reduced paper
work. This will result in mutual trust and co-operations leading to reduction in
transaction cost and a good buyer-supplier relationship.

Each attribute is classified into three classes. For e.g. Payment pattern, a= within 30
days (attribute significantly present), b = 30 to 60 days (attribute moderately present)
and $c = 60$ days and above (attribute insignificantly present). In order to facilitate measurement the points are assigned as $a=3$, $b=2$ and $c=1$. The buyer action attributes for all the ten attributes is calculated and aggregated and the same calculation is done for supplier action attributes also. The units getting points in the range of $10-15$ are rated as low, indicating that the buyer action attributes are insignificantly present in the parent-firm. The units getting points in the range of $16-25$ are rated as medium, indicating that the buyer action attributes are moderately present in the parent-firm. And the units getting points above $25$ are rated as high, indicating that the buyer action attributes are significantly present in the parent-firm. Buyer action attributes are calculated for each parent unit and similarly Supplier action attributes are calculated for each ancillary unit.

### 2.3. Computation of Value of Plant & Machinery

In calculating the value of plant and machinery, the original price thereof irrespective of whether the plant and machinery are new or second hand, is taken into account.

### 2.4. District Industries Center

It is a district level institution set up by the Government, which provides all services and facilities to entrepreneurs at one place, to set up small-scale and tiny units. These services and facilities, include identification of suitable scheme, preparation of a feasibility report, arrangements for the supply of machinery and equipment, provision
of raw materials, credit facilities and input for marketing and extension services, quality control, research and entrepreneurial training.

2.5. Analysis of the Macro-environment

2.5.1. Ancillarisation in Japan - During the post war period (1955-61) the decisive structural change in the manufacturing sector, leading to development of new industries such as metal, machinery, automobiles, electronics and aircraft resulted in industrial sub-contracting development as an integral part of the modernisation and low-cost rationalisation programmes of the big firms.

The synergetic impact of competition, innovation, liberalisation of trade compelled the large firms to concentrate on core-activities and shift the manufacturing/production of parts and components to ancillary unit. In the process the parent firm passed on their ancillary units technology, financial accounting system, quality control, industrial engineering techniques. Which helped to reduce costs and improve quality. Consequently the efficiency and competitive strength of engineering industry improved drastically (2).

The mid 60's saw the hitherto labour surplus situation turning into a labour shortage situation, As a result, the tight labour market began to progressively erode the labour cost advantage of smaller firms. In this scenario, the ancillaries were compelled to modernise themselves (due to pressure from the parent firms and with assistance from
the Government) through larger investments in advanced physical equipment for productivity boost. Those who failed to upgrade their technology lost ground and disappeared from the scene (2).

Faster development of ancillary activities in Japan has been observed particularly during 1970’s. It is found that in late 70’s and 80’s there was a higher degree of small industry development in Japan, which has become possible because of heavy reliance on ancillaryisation by large firms and the correspondingly high percentage of small and medium industries functioning as the ancillaries. In Japan, the percentage of small and medium industries functioning as ancillaries increased from 59 in 1971 to 61 in 1976 and further to 66 in 1981 of the total manufacturing. Trends in ancillaryisation among major industries in Japan are shown in Table 2.1.

Table 2.1. Percentage of Small & Medium industries as ancillaries.

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<tbody>
<tr>
<td>Textile</td>
<td>75.9</td>
<td>84.5</td>
<td>84.9</td>
<td>80.1</td>
<td>70.8</td>
</tr>
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<td>Apparel</td>
<td>71.4</td>
<td>83.9</td>
<td>86.5</td>
<td>79.3</td>
<td>73.6</td>
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<td>Metal Products</td>
<td>71.7</td>
<td>74.8</td>
<td>78.6</td>
<td>71.1</td>
<td>66.3</td>
</tr>
<tr>
<td>General Machinery</td>
<td>75.8</td>
<td>82.7</td>
<td>84.2</td>
<td>75.0</td>
<td>70.7</td>
</tr>
<tr>
<td>Electric Machinery</td>
<td>78.9</td>
<td>82.3</td>
<td>85.3</td>
<td>80.5</td>
<td>81.4</td>
</tr>
<tr>
<td>Transport Machinery</td>
<td>77.9</td>
<td>86.2</td>
<td>87.7</td>
<td>81.2</td>
<td>67.1</td>
</tr>
<tr>
<td>Precision Machinery</td>
<td>70.7</td>
<td>72.4</td>
<td>80.9</td>
<td>71.1</td>
<td>72.4</td>
</tr>
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\[ t - C q \hat{C} T \]
In the year 1980 the ancillarisation grew very fast in Japanese manufacturing industries. The parent firms started extending the Technological guidance, standard-setting, and subsidies towards rationalisation of production in order to lower costs and raise standards of precision and quality to the ancillaries, in their own interest. The parent companies would often sponsor seminars and training courses for the key personnel of the ancillary units to raise their qualification. With respect to their own personnel, the parent companies tend to provide opportunities for a second career to their retired employees to start the ancillary units so as to strengthen their connections and also it was easier for them to work with their own personnel. The presidents and key personnel of the ancillary units are usually included in some kind of presidential club in which the president of the parent company presides. An intense ‘familism’ is fostered and extends to the individual workers and employees of ancillary units with the goal of sharing the same “spirit” and of working for the greater prosperity of the whole group. There is a vertical line of precedence and authority which is often strengthened by sharing ownership and financial help and guidance from the one parent company". 

<table>
<thead>
<tr>
<th></th>
<th>51.0</th>
<th>50.8</th>
<th>59.0</th>
<th>-</th>
<th>-</th>
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<tbody>
<tr>
<td>Printing &amp; Publishing</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Iron &amp; Steel</td>
<td>66.0</td>
<td>70.4</td>
<td>72.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Non-Ferrous metals</td>
<td>69.8</td>
<td>68.7</td>
<td>73.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total manufacturing</td>
<td>58.7</td>
<td>60.7</td>
<td>65.5</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The Japanese system is often cited as a model for the dynamic benefits of ancillarisation stimulating technological diffusion, growth of small enterprises and use of labour intensive techniques. Japan has provided a model or constructive relationship between the buyer and seller, where there is sustained effort at developing each other for long-term mutual benefit.

Using the term *Kieretsu* (The family like relationship between parent and ancillary) the Japanese characterise the relationship as a partnership in which the supplier constantly strives to increase value provided to his customer. The *Kaizen* (continuous improvement) provided by the ancillaries are expected by the parent unit and represent a part of the normal relationship. Collaboration, Co-operation and Consensus have often been viewed as the cornerstones of the business operation in Japan. Both sides exhibit a natural disdain for waste and each shares the objectives of efficiency, increased quality and lower costs. The task would be that of structuring the relationship into a win-win model. This system can be demonstrated by studying a case of Toyota and its ancillaries.

**Toyota and its ancillaries:** At the heart of Toyota Production system is the Just-in-time (JIT) concept. Each ancillary is simply an extension of the manufacturing capability of Toyota. The ancillary is viewed as an integral part of Toyota, both from a philosophical and an operational perspective. The network can be compared to a spider web in which all the spikes are linked to the center and the cross threads supply
the support. The cross threads are the tools and techniques developed by Toyota for dealing with the suppliers.

The concept utilises **Kanban** (The Japanese card system in which an empty parts container trigger the release of a replacement container filled with the part), which is a supply pull system in which material is reordered on a consumption basis.

To maintain quality, the quality principle of **Jikoda** (defect or problem prevention) is used. This means that a problem is not pressed on to the next operation. It is corrected at the point where the problem is found. The quality objective for incoming material is 100 percent defect free! Defect prevention is planned to take place at the supplier's facility. It is in his interest to apply the principle of **Jikoda** to his own operation. If this is not the case, the supplier generates two types of waste, the waste of inspection and the waste of correction. Neither adds value to the product.

The elimination of waste is accomplished by searching for continuous improvement, called **Kaizen. Kaizen** is a cornerstone of the relationship between the ancillary and parent unit. The ancillary commits to continuing improvement of the product in the form of higher quality or reduced cost. Constant improvement is considered to be a requirement for economic survival.

**Heijunka** is the process of leveling or providing evenness of work. This principle stresses consistency in the daily activities. Non-consistent actions create waste.
Standardisation has become a key factor in this area. Since Toyota wants all ancillaries to be capable of receiving schedules electronically.

**Prompt payment** by Toyota for completed orders of ancillaries is a strong stimulus for the performance of ancillaries. Managers of Toyota visit suppliers at least twice a year. The purposes of the visit are to discuss areas of mutual concern, offer suggestions for improvements and cement the relationship between the parent and ancillaries. Supplier evaluation is an ongoing activity with frequent interfacing between Toyota and its ancillaries. Should a supplier have problems, Toyota stands ready to provide technical assistance to its ancillaries. Finally, meeting of ancillaries is held *periodically* to define supplier goals and objectives over a wide range of functional areas including purchasing, production control and quality control.

An ancillary becomes a part of the team and in turn, is responsible for structuring its operation to meet team requirements. Control over the ancillary is accomplished by **interfacing, not interfering.**

This system holds many positive attributes for ancillaries. There is clear and uniform communication to each ancillary on the key issues of price, quality, delivery, packing and engineering changes. The specific responsibilities of Toyota and its ancillaries are carefully defined in a manual. The rewards for good performance are present in the form of prompt payment, profit and reduced paper work. At the same time, poor performance detracts from profit. The Toyota policy of constant feedback to the
ancillary in a variety of ways is the constant reinforcement of its operating principles. Throughout the duration of the relationship constant improvement is sought. Obviously, there is a constant need to review and examine the relationship to insure the win-win result. This is the cornerstone of the relationship with the ancillaries.

When the above system of ancillarisation was implemented at New United Motor Manufacturing Inc. (NUMMI), a joint venture between Toyota and General Motors at Fremont, California, the following improvements were noticed in the system.

♦ Number of ancillaries reduced.
♦ Contract period extended.
♦ In-house manufacturing rate of parts decreased.
♦ Proximity of ancillary to manufacturers considered.
♦ Local association of ancillaries established.

2.5.2. Korean Example- Korea has successfully emulated the Japanese practice of ancillarisation in order to promote their local supporting industries. In the early years, major Korean industries like Samsung, Daewoo and lucky Goldstar, were producing almost everything in-house, from electronic components and electrical accessories to semi-conductors and precision engineering parts (3). Faster development of ancillary activities in Korea has been observed particularly during 1980's.
The proportion of small firms that engaged as ancillary units has increased from 38% in 1982 to 43% in 1986 (Table 2.2). Growth of ancillarisation is found highest in engineering and allied industries (77%). In order to promote ancillarisation, Government of Korea had introduced a five-year plan for indigenous of machinery, components and materials during 1987-91. Under this plan specific items were identified and designed. For indigenous and various financial assistance, technical guidance and industrial/technical information dissemination programme were implemented to help ancillary units to produce these items.

Table 2.2. Percentage of ancillarisation in Korea’s Manufacturing Sector

<table>
<thead>
<tr>
<th>Sector</th>
<th>1982</th>
<th>1986</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fabricated metal products</td>
<td>45.9</td>
<td>48.3</td>
<td>52</td>
</tr>
<tr>
<td>Machinery &amp; Equipment</td>
<td>56.6</td>
<td>63.5</td>
<td>70</td>
</tr>
<tr>
<td>Electric Machinery</td>
<td>61.0</td>
<td>76.8</td>
<td>85</td>
</tr>
<tr>
<td>Transport Equipment</td>
<td>51.2</td>
<td>73.8</td>
<td>80</td>
</tr>
<tr>
<td>Total Manufacturing</td>
<td>37.7</td>
<td>43.0</td>
<td>52</td>
</tr>
</tbody>
</table>


2.5.3. Ancillarisation in Developing countries. In almost all developing countries eventhough the ancillarisation exists the linkage between ancillary and parent unit are extremely weak. In many cases, such as the poorly industrialized African countries, the main reason for this obviously is the lack of efforts by large firms, which might induce the development of ancillary industries. Even in countries like Argentina,
Indonesia or Thailand, however, where a considerable number of large enterprises exists, there is a lack of buyer-supplier relationship. Large firms, whether national or multinational, inward or outward oriented, are usually highly dependent on imported inputs, or otherwise vertically integrated. It is noteworthy that the ancillary arrangements are motivated by the desire to cut wage costs rather than based on technological specialisation.

There are several reasons for this. The principal cause may be lack of maturity of small firms, since they cannot compete with international suppliers in terms of price, quality standards, delivery times and reliability. In case of automobile industry, where proximity of suppliers is relevant, multinational companies induce their experienced international suppliers to build up production capacities in the neighbour of their plants in the host country. They do not usually make the effort to build up ancillary industries on the base of domestic firms. The examples that can be cited in the Indian context are Daewoo and Hyundai. Another explanation for the lack of development of local ancillary units refers to the inward oriented economic policies, which most countries pursued in the last decades. These policies did not create incentives for specialisation, since the domestic market for mass products were protected. In addition, the impact of number of inputs, e.g. capital goods, was subsidized by overvalued exchange rates, thus discriminating against domestic manufacturers of these products. Another explanation for the insufficient development of ancillary units refers to large firms and small firms compete selling similar standardized products, though small firms are usually confined to the lower end of these markets. It is quite
obvious that a large proportion of these small producers for traditional markets will disappear, due to the increasing pressure of imported goods and to the modernisation of large-scale competitors in their home countries. As a matter of fact, this process has already occurred during the historical development of the industrialised countries and in many of those countries which liberalised their trade regimes relatively early, such as Chile.

There is a fundamental difference between industrial structures in developed countries compared to most of the developing countries. In the former small firms complement the production of large firms, either as suppliers or serving special market niches. Policy makers need to anticipate this process, designing policies to catalyse and to buffer the necessary structural change. The promotion of ancillarisation should be one of the important parts of a general policy, oriented towards formation of competitive and interlinked industrial structure.

It would be useful to look at how some countries, especially those in Asia, have managed to promote their ancillaries. Programs for development of ancillaries in Indonesia, Malaysia, Singapore, Taiwan and Thailand have been moving from protection towards promotion. The extent of success of these programs has varied across countries. The key to their success has been the policy of targeting specific firms with well-defined assistance programs. Meyenathan and Munter (1994) provide details of varying policy interventions across East Asia for ancillary's (4). Some of these are:
♦ Tax incentives
♦ Specific Institutional Arrangements
♦ Vendor Development Schemes
♦ Local Content Requirements
♦ Information Provision & Exchange, and
♦ Cluster Creation

Malaysia and Singapore provide tax incentives to multi-national firms for subcontracting parts and components from local ancillary units. The idea is to ensure the flow of best practices between global firms and local small firms. In addition, domestic sourcing is supposed to increase considerably.

Governments in Malaysia, Singapore and Taiwan have developed special arrangements to internationally improve coordination (both in terms of flow of goods as well as information) between small and large firms. The “umbrella strategy” in Malaysia, the “foster-father” program in Indonesia, the “Local Industry Upgrading Program (LIUP)” of Singapore and the “Center-Satellite Factory System (CSFS)” of Taiwan are all aimed at developing inter-firm linkages between large and small firms. Under the first two programs, inducements are given to a large firm, which has financial and managerial resources to help coordinate the production and marketing for ancillary units. Other than the flow of skills and information on market requirements from large firms to ancillaries, sometimes the products of ancillaries is
sold under the large firm's name there by reducing the cost associated with branding a product. LIUP encourages multi-national firms to adopt local firms in order to help them upgrade skills and technology. A salary of participating employees from the multi-national firms is paid from this program.

The CSFS is a classic example of policy intervention, which is aimed at upgrading the technological & managerial capabilities of small firms so that they can become suppliers to one large firm which will subsequently act as a mother unit in terms of transfer of capabilities as well as business development. These programs have been successful in each of these countries. The key focus of these programs has been their emphasis on quality standards and standardisation of processes, which has been the most important reason for their success. For example, the "Standards and Industrial Research Institute of Malaysia (SIRIM)" was established in 1975 with the purpose of promoting standards and quality assurance through better systems, practices and technology. Other than providing consultancy services to small firms, SIRIM helps small firms to partner with large firms in improving the formers quality, provides testing facilities for new products and has a "depository of seven million technical documents containing technology information on patents, standards specifications, R & D results and technological data" (5).

Vendor Development Schemes have been similar in nature, individual firms like Proton in Malaysia have initiated the most of them. They have ranged from providing credit guarantees (through the Credit Guarantee Corporation) in Malaysia to providing
benefits to firms that helped their SSI vendors improve technological skills & operational efficiencies in Singapore. The key reason has been the need of large firms to share as well as pool risks with part makers.

2.5.4. Indian Scenario - During the early days of industrial development in India, the large and small-sectors were two totally distinct entities. While the large units manufactured all their requirements under one roof, the small units tried to meet the requirements of large units. Even the items, which could have been manufactured more economically by a small unit, continued to be manufactured by the large unit itself. As a result, there was a considerable increase in the cost of production and in certain cases, some capacity at the sub-assembly level was remaining idle. At this stage, it was realised that a transfer of capacities from certain assemblies to small units could keep the cost of production well under control. Such of these small units could keep the cost of production well under control. Such of these small units, capable of working for a large unit, in an economical manner were termed “ancillaries”. Thus the emergence and the existence of an ancillary industry hinges mainly on the fundamental principle of comparative cost advantage.

Central and State Government's Small Industry Policy - Since Independence, the Government of India has formulated a total of six Industrial policy Resolutions/Statements (IPR/IPS). It was in 1960 that the Government of India took a decision to promote small-scale industries as ancillaries and provide linkages to small and large-scale industries. The Government of India came up with the definition of
an ancillary unit as distinct from an ordinary small-scale unit. In the industrial policy of 1977 thrust was given for the development of SSI. Ancillarisation and the creation of nucleus plants for the sector were highlights of the Industrial policy statement 1980.

In the policy measures for promoting and strengthening small enterprises, the Government has allowed equity participation by other industrial undertakings in small-scale sector not exceeding 24% of the total shareholding of the SSI unit to provide access to the capital market, encourage modernisation and technological upgradation and give boost to sub-contracting and ancillarisation leading to expansion of marketing and employment opportunities.

**Public Sector Enterprises.** The first effort for development of ancillaries was directed towards the public sector industries. It was felt that with the example created in the development of ancillaries in the Public sector enterprises, there will be a spontaneous growth of capable ancillary units inside the country and the large private sector industries will be tempted to take advantage of such capacities and capabilities created in the Small-scale sector. The pioneering activity in this field was done by organisations like HMT, ITI, BEL and other organisations.

Due to the importance given by the government to the growth of Exclusive ancillary units, the value of purchases made from exclusive ancillaries by public sector enterprises increased (Table 2.3).
Table 2.3. Purchases made by Public Sector Enterprises.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Exclusive ancillaries</th>
<th>Purchases from ancillaries in Rs Crore</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974-75</td>
<td>432</td>
<td>29.31</td>
</tr>
<tr>
<td>1975-76</td>
<td>479</td>
<td>36.36</td>
</tr>
<tr>
<td>1976-77</td>
<td>508</td>
<td>43.84</td>
</tr>
<tr>
<td>1977-78</td>
<td>550</td>
<td>80.51</td>
</tr>
<tr>
<td>1978-79</td>
<td>805</td>
<td>96.44</td>
</tr>
<tr>
<td>1979-80</td>
<td>888</td>
<td>110.92</td>
</tr>
<tr>
<td>1980-81</td>
<td>984</td>
<td>120.16</td>
</tr>
<tr>
<td>1981-82</td>
<td>1078</td>
<td>130.23</td>
</tr>
<tr>
<td>1982-83</td>
<td>1176</td>
<td>135.61</td>
</tr>
<tr>
<td>1983-84</td>
<td>1412</td>
<td>141.23</td>
</tr>
<tr>
<td>1984-85</td>
<td>1648</td>
<td>148.11</td>
</tr>
<tr>
<td>1985-86</td>
<td>1885</td>
<td>150.28</td>
</tr>
<tr>
<td>1986-87</td>
<td>2005</td>
<td>155.52</td>
</tr>
<tr>
<td>1987-88</td>
<td>2200</td>
<td>154.23</td>
</tr>
<tr>
<td>1988-89</td>
<td>2115</td>
<td>150.22</td>
</tr>
<tr>
<td>1989-90</td>
<td>2190</td>
<td>152.23</td>
</tr>
<tr>
<td>1990-91</td>
<td>2010</td>
<td>150.05</td>
</tr>
</tbody>
</table>

Source: CII (1991)
The table shows there is evidence in the growth of exclusive ancillaries from 1974-75 to 1990-91 in the public sector. The Bureau of public enterprises which is the coordinating agency under the Ministry of Industry to look after the affairs of the public sector enterprises under Government of India issued comprehensive guidelines in 1971 to the public sector enterprises spelling out the steps to be taken by them for accelerating the growth of the exclusive ancillary units.

These guidelines were subsequently revised after the national workshop on ancillary development held at Bangalore in July 1977. The revised guidelines issued in May 1978, dealt more significantly with the promotional measures, reviewing and monitoring mechanism of the programme and the role to be played by the administrative ministries controlling the public enterprises, the Development Commissioner Small Scale Industry (DCSSI), Small Industry Service Institute (SISI) and the State Director of Industries.

The management of the public sector enterprises was also asked to send half-yearly progress report regarding ancillary development program relating to the undertakings to the administrative ministries concerned, the DCSSI and the State director of industries. It was also envisaged that ancillary development advisory committee could be established by the PSEs to advise the management about the support provided by the PSEs including the arrangement.
These efforts resulted in the growth of exclusive ancillaries and showed a steady increase in the purchases made by the PSEs, which is given in the table 2.3. Even the data show increase in number of ancillaries, it is found that the ancillarisation programme of PSEs has failed. The examples that can be cited are HMT, KSRTC etc. the reasons for the failure are, the over-dependency of ancillary units on the parent unit and inefficiency of PSEs to give stable production order to the ancillary units.

**Private sector Enterprises** - The private sector industries in the country are under no compulsion to follow the Bureau of public enterprise guidelines. Many Private Sector Enterprises in the country has taken up vendor development programme. However, it has been gathered that ancillarisation activities have been particularly pronounced in the field of engineering, electrical, electronics and chemical industries. It is unfortunate to find that there is no monitoring system for obtaining data on the efforts of ancillarisation made by the private sector industries. It was also found that recent data on ancillaries was not available.

Firms belonging to a wide range of industries medical engineering and chemicals have developed ancillary units. But the majority of the works done by the small units consists of machining, fabrication, manufacture of components, plastic molding, assembling etc. most of it apparently labour-intensive involving simple technology. Most of the parent units provide some kind of technological guidance though very few of them provide financial assistance. It is also found that neither the parent firms nor small-scale units
functioning as an ancillary prefer to acquire exclusive ancillary status in the private sector.

Maruti Udyog Limited (MUL), in India defined for the first time a standard product quality not only for itself but for an entire industry. Other than delivering a product of higher quality than what the Indian market was used to, MUL employed many of the practices followed by firms in Japan like Kanban Control, Statistical Process Control (SPC), small group activities etc. But noticeable amongst them was the vendor development experiment that it undertook. Maruti 800 represented a new technology for the Indian market. While their Japanese partners provided the plant design and dies, Indian engineers did implementation and subsequent improvements.

MUL owes, to a large extent, its fast growth in the passenger car-manufacturing field to successfully phasing out its manufacturing operations to the ancillaries. Maruti practices the Japanese philosophy.

MUL did not have the vendor base to develop components for its products. The phased manufacturing program required it to localise its sourcing of components. MUL developed an extensive vendor base by helping firms to set up ancillary units, initially in the Gurgaon area. It is transparent to ancillaries and suits the specific needs of the ancillary units especially relating to the prompt clearance of their dues. It also facilitates transfer of technology (5). Over the years it has developed a base of over 500 vendors.
MUL has arranged for Suzuki's suppliers in Japan to form joint ventures with local firms like Munjal, Sona Steering etc. Sometimes, MUL also participated with equity. It has been helping its vendors achieve desired quality and maintain delivery schedules (often JIT) and reduce costs. In addition, MUL gave regular orders and yearly schedule to its vendors. MUL's interventions in improving process capabilities to reduce inventories, rejects and breakdowns led to considerable increase in productivity at vendor locations. In order to ensure that vendor capabilities do not deteriorate, MUL periodically sends engineers to monitor manufacturing processes at vendor locations and help them to overcome technical and managerial problems. It has developed a certification program for its vendors and holds training program for them.

Eicher Good earth Limited, is one of the late entrants into the tractor industry. The extent of ancillarisation in this firm is very high. The proportion of bought-out parts form about 81% of the value of sales; excluding excise duty. The management attributes the lower price for its comparable range of tractors to its efficient ancillary development programme (Business India, Feb 2-15, 1981).

Escorts Ltd. is one of the large diversified and very rapidly expanding engineering concern mainly producing tractors, motorcycles, automobile ancillary and a number of items for the railways. It is one of the firms, which consciously promoted ancillarisation right from its inception. The total purchase from ancillary industries has grown from Rs. 10 crore to Rs. 70 crore. In 1981 Escorts had 3010 ancillary units. The ancillarisation of
Motor Industries Corporation (MICO) is worth mentioning. MICO has a separate cell for ancillary development programme.

2.6. Sub-Contract Exchanges for Ancillary Development.

Sub-Contracting Exchanges (SCE) are technical information, promotion and match making centers for industrial sub-contracting and ancillarisation between large and small enterprises, aiming at the optimal utilisation of the manufacturing capacities of the affiliated industries.

While large enterprises are geared by their managerial and marketing strategies and mechanisms towards all forms of industrial collaboration with other enterprises, small enterprises are not equipped to promote such collaboration and thus deserve special attention and assistance in this area. It is evident that small enterprises, particularly in the prevailing context of global sourcing, are most in need of support services given their limited expertise in the matter entering new markets and their generally higher risk-aversion compared to large transnational corporations. Institutional support mechanisms are thus needed that will help them to acquire the necessary information on, and access to, upgraded technology, source of finance, new markets, foreign licenses etc., and to establish long-term industrial cooperation agreements.

UNIDO provides technical assistance to developing countries for establishing and operating SCEs. It assists in setting up a roster of subcontractors, ancillaries and main
contractors. UNIDO also advises governments on how to create a favourable environment and to develop policies and programmes for the promotion of industrial subcontracting and ancillaryisation using the industrial legislation. In the framework of its programme, UNIDO has been surveying, designing and developing standard instruments and methods for the development of industrial subcontracting and ancillaryisation. UNIDO is presently developing a new version of the coherent computer software called OUTSOURCING 2000, which will be available in English, French and Spanish. The software is protected by a license agreement which is granted free of charge to SCEs established with the support of UNIDO.

The basic functions of the OUTSOURCING 2000 software are:

- The registration of manufacturing capacities and capabilities of industrial companies based on detailed questionnaires and surveys.

- The classification of these companies according to a set of given industrial products, sectors, products and processes etc.

- A search of subcontracting and supplying enterprises according to a very large set of criteria to match them with inquiries from buyers and suppliers.

OUTSOURCING 2000 software also includes an SCE accounting and SCE agenda facility, and it enables printing of targeted mailing and facilities and organised follow-
up of inquiries. In addition, it allows economic analyses to be carried out on specific sectors and areas, on enterprise deficiencies and required remedies, on technological and quality assessments and on investment and marketing strategies. It is written in MS Access, is user friendly, fast reliable and has a powerful and comprehensive search engine. It will also allow to export part of the company data (non-confidential) on UNIDO-Exchange and any other internet server.

Confederation of Indian Industry (CII), in close cooperation with UNIDO, has set up SCEs as part of national network of SCEs. This serves as a National outsourcing agency for vendor development to benefit all new industries being established as well as existing industries in the country. It provides “OneStop Shop” for information on the existing sub-contracting capacity and capabilities of Indian Industry. It provides linkage between Indian Industry, 4 regional SCEs and 45 international SCEs in 30 countries, thereby being part of the Global Sourcing Network.

The office of the Development Commissioner Small Scale Industries (DCSSI), has an ancillary industries division, with the help of Small Industries Service Institute (SISI), located in each state, maintains constant liaison with Public and Private sector undertakings and other Government and Non-Government agencies for undertaking promotional activities in the field of ancillary development.

Under the 8th Plan the Government of India has set up 16 sub-contracting exchanges throughout the country with a primary objective of providing linkages between large
and small sectors of industries and to promote ancillarisation. These Sub-contract Exchanges are set up through Non-Government Organisations taking the help of SISI. The objectives of setting up a Sub-contract exchange are given below.

1. The collection, analysis, storage and organisation for rapid retrieval of information and data on the existing production capacities and capabilities of small scale enterprises.

2. Assistance to potential ancillaries in organising potential clusters and associations and in negotiating agreements with parent-firms.

3. To register Spare capacity of manufacturing or services available with small and tiny units.

4. To obtain details of items regularly required by other large undertakings, which could be manufactured in the small-scale sector.

5. To match the requirement of large undertakings with the spare capacity available with SSI units.

6. To arrange buyer-seller meets and vendor development programmes etc., so as to display the products required by large undertakings and to discuss the specifications and other requirements with small-scale units, participating in such meets.
7. To set up a data bank for providing the necessary information to the SSI units, large Industries and the government agencies etc.

8. To assist in developing the export promotion in this area.

9. To conduct the necessary programmes which will be helpful to the SSI units in promoting their products.

While only two sub-contracting exchanges existed in 1970 at Bombay and Madras the figures went up to 16 in 1979. Correspondingly the number of enterprises registered with these exchanges increased from 955 in 1975-76 to 8991 in 1991-92 (Table 2.4).

Table 2.4. Performance of Sub-Contracting Exchanges (SCEs)

<table>
<thead>
<tr>
<th>Year</th>
<th>No. Units Registered with SCEs</th>
<th>No. of cases assisted by SCEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-76</td>
<td>955</td>
<td>4510</td>
</tr>
<tr>
<td>1976-77</td>
<td>1381</td>
<td>1561</td>
</tr>
<tr>
<td>1977-78</td>
<td>1223</td>
<td>4152</td>
</tr>
<tr>
<td>1978-79</td>
<td>1448</td>
<td>5329</td>
</tr>
<tr>
<td>1980-81</td>
<td>5502</td>
<td>5552</td>
</tr>
<tr>
<td>1981-82</td>
<td>5800</td>
<td>6012</td>
</tr>
<tr>
<td>1982-83</td>
<td>6112</td>
<td>6850</td>
</tr>
<tr>
<td>Year</td>
<td>Value1</td>
<td>Value2</td>
</tr>
<tr>
<td>---------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>1983-84</td>
<td>6549</td>
<td>7012</td>
</tr>
<tr>
<td>1984-85</td>
<td>7011</td>
<td>7720</td>
</tr>
<tr>
<td>1985-86</td>
<td>7565</td>
<td>8009</td>
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<td>9012</td>
</tr>
<tr>
<td>1989-90</td>
<td>8566</td>
<td>9345</td>
</tr>
<tr>
<td>1991-92</td>
<td>8991</td>
<td>9645</td>
</tr>
</tbody>
</table>

Source: Office of the Development Commissioner SSI.

The attempt at documenting the development of ancillaryisation, the changes in the development of ancillaryisation in Indian Industry, though lack in detailed statistical account at macro level does suggest a considerable growth. Now with the liberalisation of Indian economy and opening up of markets poses a number of challenges and opportunities. For the survival and balanced industrial growth ancillaryisation has become vital factor. The small scale sector should be technologically face lifted and work as a supporting industry rather than a producer of finished goods and the large scale sector has to concentrate on core activities shifting manufacturing to ancillary units.
2.7 Summary:

1. **Types of ancillarisation** - Depending upon the stages at which ancillarisation is undertaken, ancillarisation can be classified as Component, activity, Assembly and Product.

2. **Parent ancillary relationship** - Parent ancillary relationship is of crucial importance for the success of ancillarisation. It is found from the study that both parent and ancillary should take appropriate actions for promoting ancillarisation. These actions are termed as buyer action attributes and supplier action attributes. The extent, to which these attributes are practiced by the parent-firm and their ancillary, decides the degree of ancillarisation. The buyer action attributes and supplier action attributes can be measured.

3. **Buyer action attributes** - Buyer action attributes are the appropriate actions to be taken by the parent-firm for promoting ancillarisation. Out of the several attributes identified only 10 attributes which are vital for promoting ancillarisation and taken in this study are, *Economic Related attribute, Supplier Evaluation attribute, Supplier audit attribute, Convenience Related attribute, Finance related attribute, Reliability Related attribute, Assistance Related attribute, Training related attribute, Stability related attribute, Dependability related attribute.*
4. **Supplier action attributes** - These are the appropriate actions to be taken by the ancillary unit for promoting ancillarisation. Out of the several attributes identified only 10 attributes which are vital for promoting ancillarisation and taken in this study are, *Technology related attribute, Reliability related attribute, Commitment related attribute, Service related attribute, Capability related attribute, Human Resource related attribute, Dependability related attribute, Quality related attribute, Value related attribute, Caliber-related attribute.*

5. **Ancillarisation in Japan and Korea** - The Japanese system is often cited as a model for the dynamic benefits of ancillarisation in stimulating technological diffusion, growth of small enterprises. The success of ancillarisation in developing symbiotic co-existence between large and small-scale industries in Japan has become a lesson for others. Korea has successfully emulated the Japanese practice to promote ancillarisation.

6. **Ancillarisation in developing countries** - Inspired by the Japanese and Korean successes, ancillarisation has been recommended, for developing countries as a mechanism for widespread industrialisation and employment generation. Programs for the development of ancillaries in Indonesia, Malaysia, Singapore, Taiwan and Thailand have been moving from protection towards promotion. The extent of these programs has varied across countries. In developing countries the ancillarisation continues to be at a disorganised and underdeveloped stage.
7. **Ancillarisation in India** - In India, in the fifties large enterprises believed in manufacturing as many components in-house as possible. The fact that ancillarisation has increased since the mid-sixties suggests that the growth of this relationship could have been in response to the recession of the mid-sixties and the slower growth of manufacturing output in the subsequent period. The synergetic impact of competition, innovation, liberalisation of trade compelled the large firms to concentrate on core-activities and shift the manufacturing/production of parts and components to ancillary units. Maruti Udyog, Eicher Good Earth Ltd., Escorts Ltd., Motor Industries Corporation and few other industries in private sector have successfully implemented the process of ancillarisation.

8. **Role of Government agencies in India** - Though the Government of India provides exclusive ancillaries with some additional concessions, it appears that neither the parent units nor small-scale units prefer this 'exclusive status'. The study shows that in Indian context, the ancillarisation is prevalent in engineering and allied industries. The role of government policies, especially in India, could have played a crucial role in promoting ancillarisation. At Central level, under Ministry of Industry an exclusive Department of Small and Agro based and rural industries exists since 1991 for the promotion and development of small-scale industries. The office of Development Commissioner (Small Scale Industries) has been functioning within the Ministry of industry since 1954 as an apex/nodal organ and provides link
between the Ministry/Department and field organisations. Since 1991 it has been working as an attached office to the Department of Small Scale and Agro based and rural industries. The Small Industries Development Organisation (SIDO) headed by the Additional Secretary and Development Commissioner (SSI), being an apex body for formulating policies for the development of small-scale industries in the country. The SIDO has an Ancillary Industries Division at the center. With the help of Small Industries Service Institutes (SISIs) located in each state, Sub-contracting exchanges have been set up for undertaking promotional activities in the field of ancillary development. District Industries Center, is a district level institution set up by the Government, which provides services and facilities to entrepreneurs at one place, to set up and to develop small and tiny units. In Karnataka state, many large / medium scale Public sector and Private sector undertakings have promoted the development of ancillary units. But, there is no monitoring system for obtaining data on the efforts of ancillarisation made by the private sector industries.

9. **Sub-Contract Exchanges (SCEs)** – UNIDC provides technical assistance to developing countries for establishing and operating SCEs. CII, in close cooperation with UNIDO, has set up SCE as part of national network of SCEs. These have been set up at several places with assistance from central Government. These Sub-Contracting Exchanges serve as a data bank to register the requirements of parts, components, tooling, etc. needed by large and medium industries on the one hand and the matching of spare capacities of these available with SSI units for promoting linkages between large and small enterprises. The primary objective of SCEs is to
provide linkages between small and large scale industries and promote
ancillarisation.

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