

PART III : ORGANIZATIONAL FRAMEWORKS

In this part of the paper we investigate the organizational frameworks that Honda and its suppliers have built in North America in order to facilitate their daily inter-firm relations. **Underlying the discussion is the question of the extent to which these frameworks have been modelled on Japanese experience - transplanted - or have been changed to suit North American circumstances - transformed.**

Several notable features of the organizational framework that Honda has instituted to govern its assembler-supplier relations make for interesting comparisons with the Japanese model. While these features are inter-related, they can usefully be analysed under five headings : 1) tiering arrangements among supplier firms, 2) inter-firm divisions of labour and collaborative links, 3) specific arrangements designed to ensure competition among supplier firms, 4) joint venture arrangements between firms, 5) formal organizational links.

1) Tiering arrangements

The arrangement of tiers of supplier firms in Honda's North American production structure has several distinctive features, including a shallowness in comparison to Japan, different roles for domestic vs Japanese firms, and a network-like structure that points away from easy categorization of firms into specific tiers.

In the first place, in general the multiple tiering arrangements characteristic of Japan are not evident. Instead, there is a more shallow structure of two to three tiers of suppliers beneath Honda. At this depth the production structure has already reached manufacturers of basic materials. In some instances, however, establishment of a detailed division of labour among supplier firms has resulted in the appearance of more tiers than is traditionally the case in North America. Thus seat manufacture in western firms has traditionally been undertaken within the final automobile assembly plant, including sewing and assembly (although this is changing rapidly due to outsourcing and to mimicry of Japan). By contrast, Honda's North American production structure includes separate firms that respectively sew materials and assemble seats. These are inserted as tiers between the fabric manufacturers and Honda's assembly plants.

A second feature of Honda's tiering arrangements is that Honda and its first-tier supplier transplants have rooted themselves firmly into the existing North American industrial infrastructure of first - and second - tier domestic manufacturers of basic materials. This arrangement is symbolically represented in the main part of figure 1. Thus the transplantation of Japanese supplier firms to North America involves mostly manufacturers of specific automobile components at first-tier (and sometimes second-tier) levels. By contrast, basic materials and simple parts are largely purchased from the broad industrial infrastructure that serves many North American industries.

A notable modification of this pattern of purchasing materials from domestic firms results from the large-scale investment in North America by Japanese steel and tyre companies that have taken over or formed joint-ventures with North American counterparts. Japanese firms in these sectors have acted to prevent loss of their automobile industry markets, and their move into North America has been permitted by North American firms that are unable to produce as efficiently and to the high quality standards demanded by the Japanese assemblers in North America (joint ventures are further discussed below).

The end result is that Honda has almost entirely bypassed the traditional North American automotive supplier industry, by bringing from Japan its suppliers of specific automobile components and by limiting its purchases from domestic firms largely to parts that are not specific to automobiles. This **evasion of the domestic automotive parts industry** is emphasized by another pattern : on several occasions when Honda has sought to purchase automobile parts from domestic firms, it has turned to, and helped to convert, firms that were not previously part of the automotive sector (see below).

The political anger of the domestic automotive supply sector and its political allies has focused on such patterns (see Mair, 1991). On the other hand it should be noted that because of the high levels of vertical integration at North American assembly firms, particularly at General Motors and Ford, for many automobile parts there are few or no independent North American suppliers to which Honda could have turned. In several cases, the larger independent domestic components manufacturers have formed joint-ventures with Japanese firms to supply Honda (see below).

The third notable feature of Honda's tiering arrangements is their complexity, particularly where Japanese supplier transplants are involved. As noted above, commentators ascribe to the automobile industry in Japan a system of distinct and clear tiers (though this is put in doubt by some descriptions of more complex inter-firm

relations in Japan (Ikeda)). By contrast, Honda's North American production structure involves many networking arrangements in which firms occupy more than one tier - often first - and second-tier levels simultaneously - because they make more than one part. Some of the resulting complex web relationships are described in the examples of inter-firm divisions of labour given below.

2) Inter-firm divisions of labour and collaborative linkages

Three examples attest to the complex nature of divisions of labour and collaborative linkages among firms in the Honda production structure. The first example illustrates a deepened division of labour via insertion of multiple tiers into a supplier chain. The second and third examples reveal a complicated network form of inter-firm relations rather than a crisp linear tiering structure.

The first example is windscreen manufacture. During the early 1980s Honda had purchased windscreens from the domestic firm PPG, which also made the glass. When PPG proved unable to resolve persistent quality problems, Honda asked the major Japanese supplier Asahi Glass to establish transplant operations, which opened in Ohio in 1986. Now a first-tier transplant factory adds trim to the windscreens to prepare them for final assembly, while a second-tier plant located in the same town occupies the pivotal place in the supplier chain, making the windscreens to a Japanese firm in Japan, for assembly into vehicles that are then exported to the United States.

The second example is a joint-venture transplant that makes several different plastic parts for Honda. The Japanese supplier firm involved was initially reluctant to construct a transplant factory. Less than one year after production had started in 1987, however, it had become involved in a complex web of inter-firm linkages (see table 4). Not only is the transplant linked to its major customer, Honda, and to its domestic firm suppliers of raw materials, but it has developed an intricate nexus of relations with other Japanese supplier transplants so that the factory occupies diverse niches in the supplier chain at both first - and second-tier level. Moreover, a domestic firm that also supplies Honda with plastic parts, and which is a potential competitor, pushed to become involved as a minority partner.

Table 4 : Cooperative linkages developed by a new supplier transplant

With Honda :

1. Japanese firm enticed to construct transplant by Honda financial and organizational aid. Honda owns 35 per cent of transplant, Japanese partner, which is manager, owns 55 per cent.
2. Transplant supplies Honda with three very different painted plastic parts.
3. Vice-president seconded from Honda to ensure that "Honda Way" is followed.
4. Honda Engineering approval required for all new sub-components sourced in North America, down to nuts and screws.

With domestic firms

1. Domestic firm (150 km away) that has long supplied Honda and domestic assemblers with other plastic parts asked to, and became, 10 per cent joint-venture partner in transplant and sought further technical collaboration.
2. Bulk raw materials purchased from giant domestic firms and also from small domestic firms.

With other supplier transplants

1. Complex part used in sub-assembly purchased from transplant A (100 km away) which also supplies Honda and other supplier transplants directly.
2. Sub-component purchased from transplant B (130 km away).
3. Manufactures sub-component used by transplant C (190 km away) that supplies component to Honda.
4. Waste materials processed for reuse by transplant D, (40 km away), which also supplies Honda.

With Japan

1. One year after production started nearly all the dozens of very small non-plastic parts required are still imported from Japan; sometimes have to be flown in to regional airport.
2. Engineers to repair some machinery fly in from Japan, causing significant delays and hence difficulties for transplant management.

Source : personal interview.

A third example is drawn from seat manufacture, the longest established supplier transplant activities. Figure 2 reveals inter-firm relationships focusing on Bellemar Parts (Marysville plant), Honda's major seat manufacturer. Bellemar Parts Marysville is located within sight of the Marysville assembly plant. It should be stressed that this diagram includes only known relationships, derived from interviews at two of the supplier transplants involved and from survey responses from four other supplier transplants. It nevertheless presents a fascinating picture of inter-firm linkages.

Since Bellemar manufactures more than one component its production network includes areas of component manufacture besides seats, such as interior trim, wheels, and brake tubes. Bellemar is thus connected to a diverse set of firms, linking it to supplier transplants making components and to domestic materials manufacturers (following the general pattern shown in figure 1) as well as to other domestic and transplant automobile assembly plants besides Honda. It becomes quite difficult to categorize firms as either first-tier or second-tier. As in the previous example, some of the firms are also linked with each other via financial holdings.

3) Ensuring competition

In several cases supplier firms have been brought into Honda's North American production structure to at once collaborate and compete with each other. The result is a structure of controlled but quite evident competition in which the existence **and identity** of a particular competitor is evident for all to see. Moreover, the competitor's capabilities are also likely to be well understood, because the firms are linked to each other collaboratively. This is dual sourcing Japanese style.

Thus in the second example given above, Honda encouraged establishment of the transplant firm to manufacture plastic parts even though Honda had an existing relationship with a domestic firm making other plastic parts. At the same time the domestic firm became a joint-venture partner in this potential competitor. The third example reveals an even plainer instance of dual sourcing Japanese style. Honda has provided Bellemar with a competitor by purchasing seats since 1988 from a second transplant seat manufacturer ("firm X"), part-owned by a different Japanese seating firm from the one involved at Bellemar. Firm X was initially established to provide Honda with special types of seats for more expensive models, but it clearly represents a potential threat to Bellemar. The competitive relationship between the two seating transplants has, however, been nuanced by Honda's requirement that firm X deliver its seats directly to the small warehouse within Bellemar's factory in which Bellemar places its seats (and now firm X's seats as well) in the correct sequence for final assembly at Honda. This gives the two firms involved a point of contact and enforces collaboration between them. American managers at both plants are quite aware of their peculiar relationship.

Turning on its head the notion of dual sourcing Japanese style - with its dependence of supplier firms on assemblers - it is notable that many transplant suppliers to Honda also sell components and materials to other assembly firms, thus broadening their markets. Indeed it is important to remind ourselves that the Honda production

structure does not stand alone. Not only is it integrated into a materials infrastructure of domestic firms, but it shares elements of a **broader Japanese automobile firm production structure** with other firms like Toyota and Nissan. Thus table 5 reveals that Honda's supplier transplants also sell to a variety of other Japanese firms in North America.

Table 5 : Honda transplant suppliers : other transplant assemblers supplied - sample

Transplant assembler	Honda suppliers with links	
Nissan	14	
Mazda	13	
Toyota	11	
Diamond Star		5
Subaru-Isuzu		4
CAMI		1
NUMMI		1

Source : Mair (1991).

Forging links with more than one purchaser continues the trend noted earlier for supplier firms in Japan to be less tied to a particular assembler than is portrayed in the old orthodox view of assembler-supplier relations. Multiple linkages has two advantages; enabling economies of scale to be reaped via larger outputs, and making the firms less dependent on a particular purchaser.

On the other hand clearly there is a category of supplier transplants that are quite firmly tied to Honda exclusively or almost exclusively. Indeed it is possible to divide Honda's supplier transplants suppliers into three broad categories with reasonable accuracy. Thus category A includes those firms that can be considered "exclusive" Honda suppliers (defined operationally as 90 per cent or more of output going to Honda). The broad category B includes firms supplying two or more assemblers (89 per cent to 11 per cent of output to Honda). Category C encompasses those firms which are only minor suppliers to Honda (10 per cent or less of output). Of a sample of 76 supplier transplants for which solid information is available, there are thirty-two supplier firms in category A, 29 in category B, and 15 in C, revealing a large number of specialist suppliers to Honda alongside a larger number of more diversified transplants.

Clearly this division represents a particular slice through time (in this case 1988) in an evolving set of supply structures. Evolution towards greater diversity is likely given the common expectation of maintaining linkages once established but also seeking new markets (Personal interviews at Honda suppliers, 1988).

4. Joint venture transplants

A substantial proportion of the Japanese transplants supplying Honda are financial joint ventures (JVs) between different firms. Twenty-one (28 percent) of 76 identified transplant suppliers to Honda are in fact part-owned by domestic firms, as in the first and second examples of inter-firm linkages above. A further 13 (17 percent) involve Japanese firms that have joined together for transplant investments.

Patterns of JV relationships have shown significant change over time. This is revealed in Table 6, which separates a categorization of JV transplant types into two time periods, 1982-1987 and 1988-1990, according to dates of production start-up. The table reveals that the proportion of JVs among all transplants has increased marginally between the two periods. More important, however, are some clear shifts in JV ownership patterns. First, the proportion of supplier transplants that are JVs involving **only Japanese** firms declined from 24 per cent to 9 per cent. This decline is partly because during the 1982-1986 period, Honda's low outputs had encouraged factory-sharing by different Japanese supplier firms to overcome problems of economies of scale, whereas after Honda's post-1986 doubling and quadrupling of original maximum output levels this was no longer a problem. Second, the proportion of all supplier transplants with **no** domestic involvement declined from 83 to 60 per cent. Third, the proportion of Japanese-domestic JVs with Japanese majority ownership has remained constant, and so the observed increase from 17 to 40 per cent in supplier transplants that are JVs with domestic firm involvement has consisted entirely of a growth of equal partnership and domestic-majority JVs, from only 2 per cent of supplier transplants in the earlier period to 23 per cent in the later period.

Table 6 : Joint ventures among Honda transplant suppliers - changes over time

	1982-87	1988-90	Totals
JV among Japanese firms	10 (24)	3 (9)	13 (17)
Domestic / Japanese JV :			
with Japanese majority	4 (10)	4 (11)	8 (11)
with 50 / 50 ownership	1 (2)	3 (9)	4 (5)
with domestic majority	0 (0)	5 (14)	5 (7)
shares unknown	2 (5)	2 (6)	4 (5)
No JV (one Japanese firm)	24 (59)	18 (51)	42 (55)
Totals	41 (100)	35 (100)	76 (100)

Note : Figures in parentheses are percentages within each time period

From this analysis it appears that there has been a shift over time towards allowing domestic suppliers to establish links with Honda, but that many domestic suppliers still find it necessary to form JVs with Japanese firms. Examination of individual JV cases reveals that, after 1988, several major independent domestic suppliers formed 50 / 50 or domestic-majority JVs to supply Honda, often selling specific mechanical parts components. Thus domestic firms Dana Corporation, ACCO Controls and TRW built new plants with Japanese partners to produce gaskets, transmission control cables and engine valves respectively.

Why there has been this shift towards including some domestic firms that produce higher value specific components via JVs is unclear. Possible explanations include political sensitivity on Honda's part, satisfactory adoption of new manufacturing techniques by domestic firms, or agreement that Japanese partners will manage the new plants constructed.

Some Japanese-domestic JVs include domestic firms that had been supplying Honda since 1982-1983, often with vital materials (glass, steel, tyres), but which were subsequently pressed by Honda to cooperate with Japanese suppliers in order to improve product quality. As we saw in the second example of collaborative linkages above, while it was disappointment with the quality of windscreens supplied by the domestic firm PPG that led Honda to request Japanese window manufacturer Asahi Glass to establish two window manufacturing transplants, PPG was included as a 20 percent JV partner in both plants to encourage it to learn how to improve product quality.

Another Japanese-domestic JV includes Inland Steel, one of Honda's three original domestic sheet steel suppliers. Inland received considerable technical aid from the Japanese steel manufacturer Nippon Steel during the mid 1980s, for improvement to the quality of steel supplied to Honda, before announcing construction of a new sheet steel plant as a JV with Nippon Steel, soon followed by announcement of a second and a third new JV steel plant. Total new investment in the three plants will be \$ 900 million, with enough steel produced to build 2.5 million cars per year, over 20 per cent of total annual automobile and light truck production in North America.

Other Japanese firms have entered the basic North American steel and rubber industries by investing in JVs, though usually by investing in existing plants. In 1988 Kawasaki Steel entered a JV by buying 70 per cent of Armco, a second Honda domestic sheet steel supplier. Similarly, Dunlop, one of Honda's three tyre suppliers in North America, was purchased by Sumitomo Rubber in 1986.

5. Formal organizations

Already seen instances of financial links as a common mechanism in each of three examples above.

Notes : substantial criticism of this in early 1990s as latest political wave against the Japanese in USA, following local content complaints etc, ie favouritism bordering on monopoly; leads to government investigations, apparently indeterminate results.

In Japan Honda hasn't the spinoffs of Toyota and Nissan. Honda eschews the formal organizations in Japan.

On associations, note "Honda suppliers day" and also meetings of human resources people on regular basis.

Examination of individual cases in North America seems to reveal quite a divergence; clearly some are closely Honda-related, are semi-spinoffs eg Bellemar. Others are quite independent, eg Stanley, others still are independent of any one J firm (note how many supply also other firms). Others had to be persuaded to come to North America because didn't want to.