An examination of changes in supply management and the resulting buyer-supplier relationship.

New Trends in the Supply Environment

Alberto De Toni, Guido Nassimbeni
and Stefano Tonchia

Logistics Information Management, Vol. 7 No. 4, 1994, pp. 41-50

Introduction

The management of external relations, both vertical and horizontal, is one of the most critical competitive factors for the modern industrial firm. Since the proportion of purchases to sales has assumed increasingly significant values in a large number of industries and, since the response to the market depends, to a considerable extent, on the quality and reliability of supplies, relations with suppliers is one of the most important grounds of competitive confrontation[1].

Joint action with suppliers in the management of the productive flow and design/product development can, in fact, help the firm to improve its time, costs and quality performances. The principal effects of this transformation are, in our opinion, as follows:

- *The revision of the traditional adversarial model of the buyer-supplier relationship*. The closer operative interdependence between the units of the production chain transform the supply transaction into a co-operative and increasingly more exclusive relationship.
- *The reconfiguration and integrated management of the supply chain*. The more extended area of buyer-supplier interaction redesigns the profile and role of the supplier according to his position inside the supply chain. In addition, since the degree of competitiveness of a product is not only measured within the company assembling it but in the whole business chain that produces each single part of it[2], the vertical connection of the units converging on the same process and contributing to the concept, design, production and delivery of the parts making up the final product becomes essential. At the same time, the competitive dynamics and the current global competing models encourage the search for more qualified suppliers and/or for sources directly linked to the operational activity.
- *Promotion of the extension of the traditional sourcing areas*. This evolution is apparently irreconcilable with the foregoing: the compatibility between geographical distance and relational proximity (demanded by the new model of buyer-supplier relations) is the subject of heated argument.

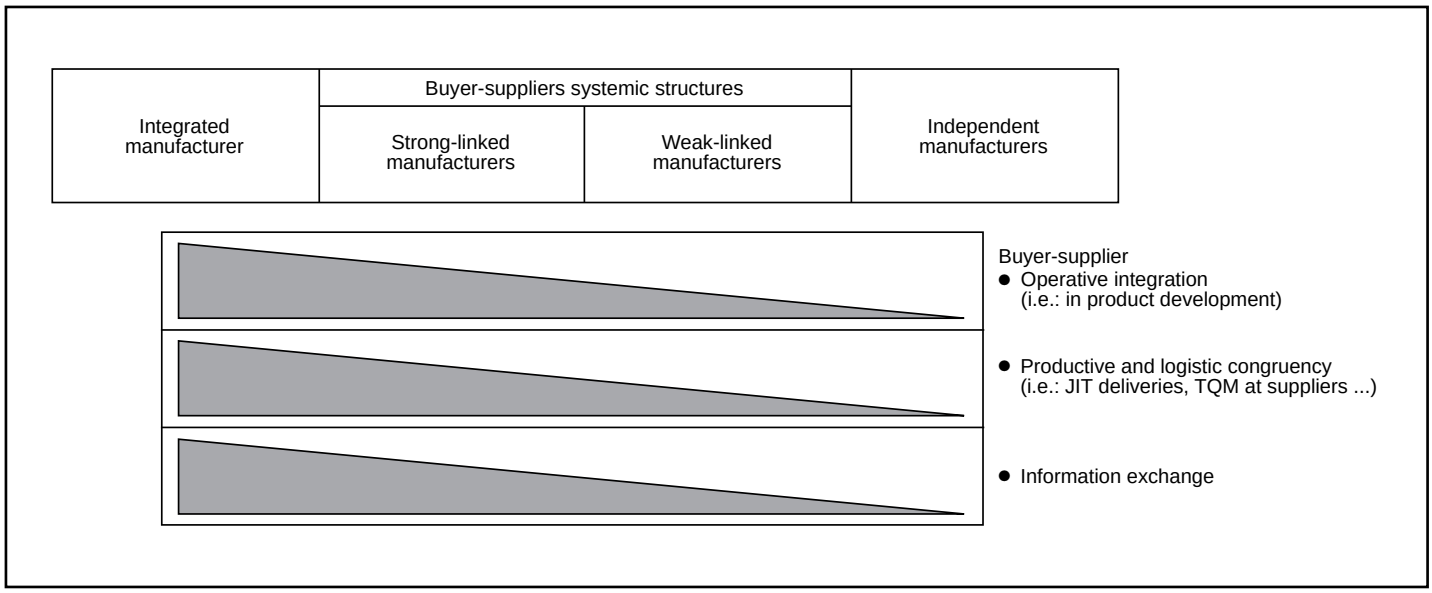
The following paragraphs analyse each of the three above-mentioned aspects, corresponding to the areas in which the supply environment has, in our opinion, been most enticed to change.

The final paragraph sketches the directions along which the purchasing function is evolving, in order to face the changes taking place.

The Model of the Buyer-Supplier Relationship

Beyond sectorial and local specificities, the present-day models of the buyer-supplier relationship seem to be characterized by a particular element – co-operation. In contrast with the antagonism and competitive individualism of the approach in the past, and encouraged by more advanced production and management systems (TQC, JIT, etc.), the modern models foresee a more extended operative interaction (in design, engineering, technological development, production, distribution, etc.) between buyer and supplier, productive and logistic congruency of the respective systems, a high amount of information exchange and joint efforts in the creation of value and the reduction of total cost[3-5] (see Figure 1). The incentive to develop such interaction arises in the context of the "operations" and can form the basis of medium- to long-term contracts, technological agreements, joint ventures and the sharing of expertise and skills. Thus the buyer-supplier relationship changes from prevalently commercial transactions based on price, to a co-operative relationship which, in the more advanced cases, assumes the form of intersection between the respective domains of strategic planning. The term "partner" describes the last step in a process

Figure 1. *Evolution of the Traditional Model of the Buyer-Supplier Relationship – Towards the Creation of Systemic Structures*



marked by various typical events – from substantially independent production and management systems to the congruence between these systems, the informative and logistic integration and the mutual involvement in all stages of product development[6].

The Reduction in the Number of Suppliers

This evolution in the buyer-supplier relationship is usually accompanied by a reduction in the number of suppliers. In fact, the requirements for design, production and logistic interaction imposed by modern management and production systems are such as to convey the relational resources of the customer (and similarly of the supplier) into a restricted number of channels.

Let us consider, for example, quality. Since the components supplied could imperil the quality of the final product, and since it is impossible to guarantee quality in the final stages of production without controlling the sources, it becomes essential for the buyer to carefully evaluate, select and train the suppliers. The process of selection, evaluation, training and certification of the suppliers (in particular those which add a significant portion of value to the final product) requires time and resources: investments concentrated not only in the initial period of the collaboration, but distributed over time according to a logic of bilateral continuous improvement.

Let us consider JIT again: it requires a smoothing production approach, rigid execution of production programmes, elimination of storage and inspection, bureaucratic delays and every source of waste[7]. The elimination of the so-called slack resources (physical: inventories, WIP buffers; or temporal: extension of lead times) is in fact aimed at compacting the phases and the production processes (including those at the upper end) so that the production flow is made easier and faster. This sets off the need for a tighter integration and synchronization of processes, a better transmission of information and greater co-ordination between buyer and suppliers[8]. The management of a JIT system thus requires an exact regulation and synchronization of the supply flows, and so, in general, the selection and reduction in the entry channels. In fact, a system based on multiple sources increases the problems in scheduling activities and in the synchronization of the logistic flow.

Encouraged by plans for the improvement of quality and the implementation of JIT methodologies, the more general programmes for containing total costs are a challenge which require joint efforts projected over medium- to long-term periods. Collaboration set up in this manner raises the threshold of exclusivity in the supplier relation.

The Boundaries of the Buyer-Supplier Co-operation

Thus, the competitive dynamics tend to link the operations at the upper and lower ends of the production flow, imposing a greater integration at the level of the entire value chain and between the different chains in succession. However, if this integration (and the corresponding new form of the buyer-supplier relationship) on the one hand foreshadows “non-market” transactions, on the other it tends to exclude a bond so tight as to cause rigidity in the system.

It is for this reason that:

- The "co-operation" which characterizes the new models does not, in general, mean harmonious collaboration with unconditional faith in each party. For instance, the Japanese model, taken as an example of an "advanced" type of supply relations, stipulates a competitive discipline within the pool of suppliers. Not by chance, it avails of efficient, unequivocal and transparent supplier evaluation and control systems – the sources are continuously checked for improvements and there is a contractual obligation to reduce the price with time. Thus, co-operation among the parties does not exclude the possibility of opportunistic behaviour; on the contrary, it is controlled by effective tools which measure the constant effort to improve. Lyons *et al.*[9] observe that we are witnessing increased attention being given to supplier selection, bargaining and evaluation processes. In total a greater number of tools are being used to select and develop an adequate pool of suppliers and to monitor the actual co-operation furthered by the new models.
- Co-operation does not automatically mean single sourcing on the part of the customer. The actual supplier evaluation and selection processes put into practice supply policies which tend to reduce the supply channels, but not make them exclusive[10].
- Co-operation is not interpreted in the same way and to the same extent with regard to all the suppliers. In other words, having assumed a model of a co-operative relation, the company should not apply it rigidly within the pool of suppliers, but make it specific according to the type of supplier, the volume of the supplies, and the importance of the object supplied in the productive economy of the buyer. As Nelson and Jambekar show[12], it is possible to identify various stages along the way leading to a buyer-supplier partnership. The amount and nature of the information exchanged, the entity and the stage at which the supplier is involved, the function with which the supplier usually interfaces, the services required and so the variables which govern its evaluation vary along the route to partnership. So, if it is true that a company is nowadays called on to review the traditional relationships with the suppliers, introducing norms of greater participation and exclusiveness, it is also true, however, that in general, only a portion of the parts/components supplied require sources placed in the most advanced and co-operative stage of the relationship.

The reciprocal trust between buyer and supplier often held to be an indispensable ingredient of a successful relationship (in some cases this is considered the real novelty in the present-day models) should be redefined according to the real dynamics of the relationship with the supplier.

Accepting that the bargaining power of the buyer and the supplier varies as a function of a multiplicity of factors (replaceability, volume, structure of the supply market and outlets, etc.), the necessity to modify the traditional model of the buyer-supplier relationship can be seen, in our opinion, in a contractual context in which the role of the parties in play is, if not distinguished by reciprocal harmonious trust, at least more balanced. In fact today the parties acknowledge that their reciprocal dependency is increasing because the area of interaction is growing. It is exactly this greater reciprocal involvement which, raising the switching costs of the relationship, tends to modify the buyer-supplier rapport, making it more balanced and stable, though more binding for each party. The irreversibility of the relational investments accompanying the creation or development of the link with the supplier, and whose threshold has been raised by modern approaches to management and production (more considerable specific investments), tends in fact to balance the bargaining power of the buyer and supplier, redesigning their respective roles.

The "non-market" relationship provides for bidirectional exchange

In any case, the "non-market" relationship between the parties, which ideally provides for a bidirectional exchange based on reciprocal trust and emphasizing factors other than the price of the supply transaction, seems to be rather far removed from reality. Imrie and Morris[13] summarizing the results of some empirical investigations carried out in the UK and in other European countries, state that:

- The reduction in the number of suppliers often seems to be motivated not by the necessity of imposing programmes of more intense collaboration and reciprocal interaction, but rather by simple short-term cost-minimization objectives. In other words, the cost involved in identifying, investigating and evaluating suppliers (real and potential), and in the management of supplies coming from a multiplicity of sources, is often the factor which has the greatest influence on the decision to reduce the number of suppliers.
- The types of buyer-supplier collaborations/ interactions are many and vary according to type and intensity. If approaches such as TQC are

widespread, however, other forms of interaction (such as JIT deliveries) seem to characterize precise sectors, though to a limited extent. It should be mentioned that some empirical investigations defined JIT as a "devious tool" thought up by the buyers to transfer responsibility for inventory to suppliers, distribute the cost of stocks and dilute the risk along the supply chain.

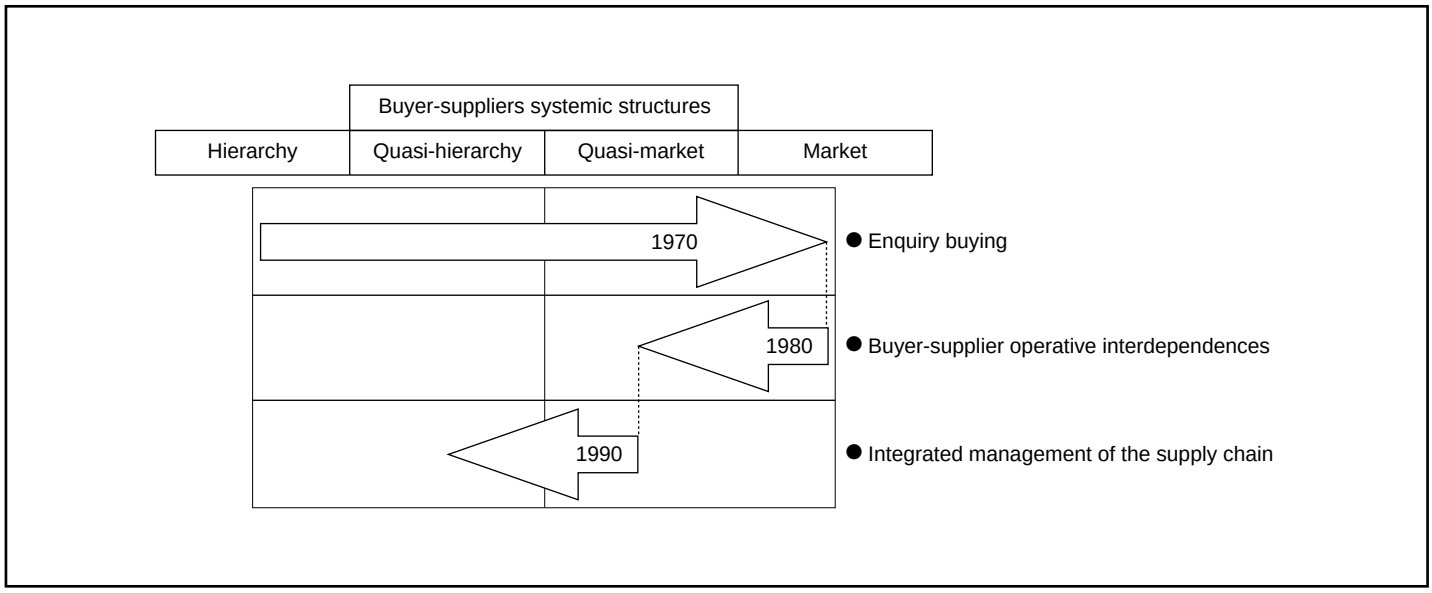
- In some cases, the exalted co-operation between buyer and supplier hides a *de facto* situation of real subjection, with the buyer dictating to the group of first-tier suppliers significant organizational and managerial modifications and conditioning the policies of investment.
- The price is frequently revealed to be the most important (or in any case not secondary in respect to quality and delivery time) parameter in the selection of suppliers.

Thus, the co-operation which characterizes the new models of a buyer-supplier relationship is still far from being a reality. In fact, the changes induced by it involve the organizational, managerial and working methods of buyer and supplier. In general, this transformation modifies their way of competing – forcing the subjects to adapt their own competitive action to a regime of teamwork in which the need to co-operate is in contrast to the individual competitiveness of the subjects themselves.

Summing up, the revision of the traditional model of buyer-supplier relations is the result of an evolution – the main stages of which can be represented as follows (see Figure 2):

- The competitive dynamics actually nudge the firm to adopt specific management practices and a joint approach to product development that induces a more extended interaction with the suppliers along the stages of the operation chain[14]. As a consequence, the specific investments borne by both parties involved grow. The supplier invited to set up a JIT system, for example, can sustain a series of expenses connected with modifications/ modernizations of the productive assets, redesigning the packaging, etc.[15]. The switching costs increase and the relation with the supplier becomes more exclusive.
- The buyer reduces the number of direct sources and installs co-operative long-term relations with the suppliers which have passed the selection.
- The supply relationship is then not regulated by market mechanisms, however, the co-operative regime thus imposed cannot do without an internal discipline which subjects the parties to reciprocal control. The main (but not the only) instrument of control in the hands of the customer is multiple sourcing, which allows a direct comparison of the performance of the suppliers. The mechanisms by which that discipline works constitute, beside a sphere of study still for the most part unexplored, a complex field for experimentation.
- The evolution from an adversarial to a co-operative attitude in supply relations coincides with a change which, in many aspects, is radical especially in the context of Western industry. In comparison with the Japanese model, Europe and the USA show a marked difficulty in the implemen-

Figure 2. *Evolution of the Traditional Model of the Buyer-Supplier Relationship – Main Steps*



tation of the new relation formulae. This is not simply on account of a different industrial context or a historic lag – the industrial structure on which the new models are set plays a determinant role[16].

The Reconfiguration and Integrated Management of the Supply Chain

The rationalization of the supplier pool and the establishment of co-operative buyer-supplier relations point to an important consequence – the supply chain tends to assume a form according to phases controlled by distinct and specific subjects, which tend to correspond to different types of supplies. The new models of relationships (and with these tools, such as JIT and TQM) exert pressure in the direction of a production chain articulated in units that carry out specific roles[19], units which differ according to the nature of the link with the buyer, the technological content provided and the complexity of the supply activity they co-ordinate.

A stylized representation of this configuration would show at one end the assemblers interfaced with the final user and at the other the manufacturers of individual parts. The intermediate phase is handled by the subassemblers capable of supplying the final assembler with component systems or end parts (Figure 3).

In fact the terminal firm now more frequently entrusts the direct suppliers with providing parts or sets of parts instead of individual items – the finished product becomes a synthesis of diversified technology and activity, and the final assembler more often assumes the role of "system integrator".

Cusumano and Takeishi[11], on the basis of an empirical research in the automobile sector and referring to some specific supply items, compare the supply structure of Japanese manufacturers with that of the US manufacturers. Their analysis highlights a series of differences summarized in Figure 4.

In the American sample, which is more vertically integrated, the buyer-supplier relationship appears to be less permeated with co-operative contents. In addition, the supply chain links the final assembler directly with the suppliers of individual parts. The final Japanese assemblers rely on closer, longer-term relationships with a small number of first-tier suppliers, preferring the "black box" supply (suppliers do the detailed engineering based on functional specifications provided by auto makers). They favour the exchange of technological expertise with and among the sources (the *kyoryoku kai* – industrial groupings of affiliated companies represent very efficient vehicles for the diffusion of advanced practices and philosophies and for the creation of a common culture) and have equity ownership in the principal supply companies.

The Japanese supply structure is, in substance, more compact and "shorter" – the subassemblers are joined in more participating (and in some cases exclusive) ways to the final producer, governing in their turn, and in a more direct manner, the suppliers of individual parts.

Figure 3. *Stylized Representation of the Supply Chain*

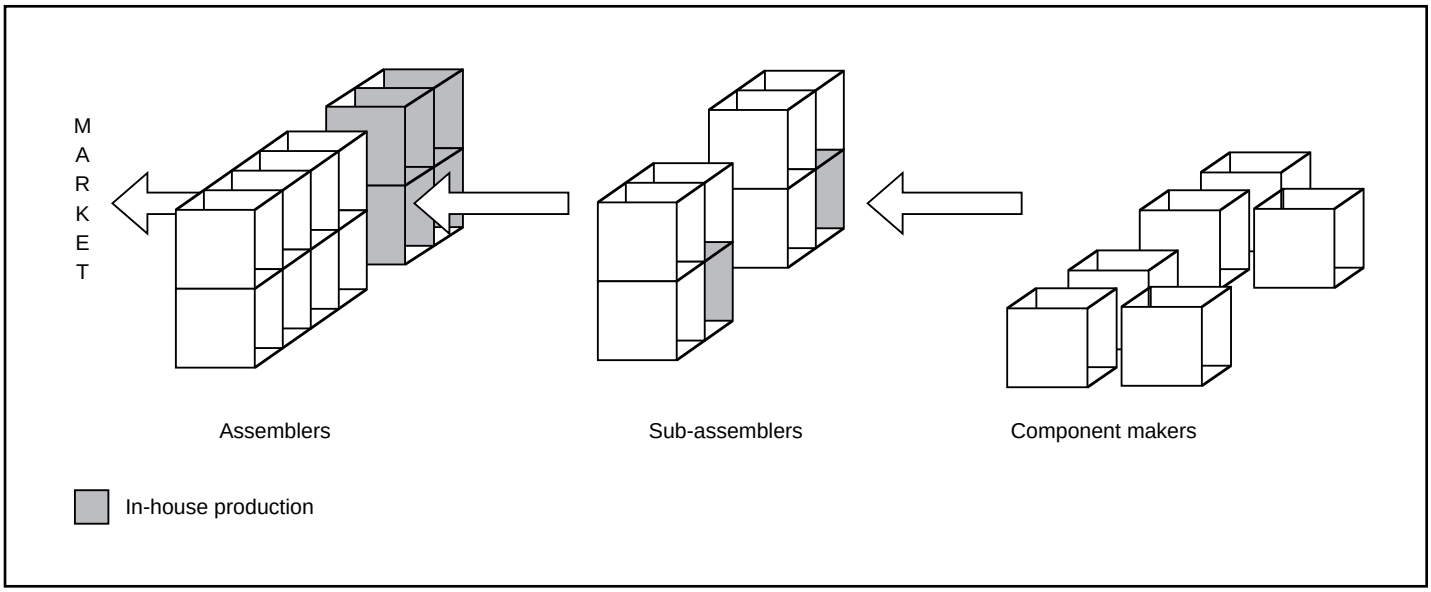
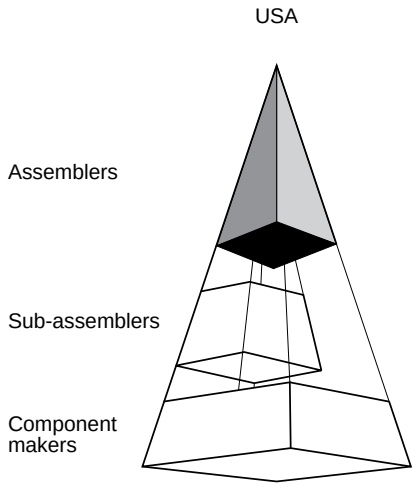
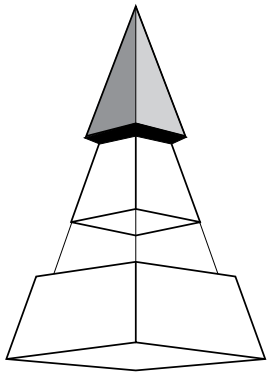


Figure 4. *Supply Structure in the Automobile Sector – Comparison between Producers in the USA and Japan*



USA		Japan
High	● Number of direct suppliers	High
2.8	● Number of suppliers per part	1.3
70%	● "Black box" supply	96%
Low	● Supplier involvement in product development	High
Low	● Information and expertise exchange	High
1.7 years	● Average length of contract	3.2 years
0%	● Percentage of affiliated suppliers (> 20% shares owned by the buyer)	33%



Source: Adapted from [11]

Another fact that emerges from Cusumano and Takeishi's research is that the diversities in the supply structure of US and Japanese producers tend to fade – the US assemblers are taking up many operational and relational practices traditionally associated with the Japanese model. Above all the supply chain tends to replicate the pyramidal configuration typical of the Japanese supply structure.

Carr and Truesdale[18], on the basis of an empirical analysis of the supply structure of Japanese car makers transplanted to the UK, state that these producers generate a local supply structure similar to the Japanese one. Even if some characteristics induced by it (such as the JIT logistical arrangements and the tiered system of contracting) have as yet made surprisingly little impact, Carr and Truesdale conclude that competition in the British automotive supply market will, in the foreseeable future, spread many of the managerial and operational practices promoted by the Japanese assemblers, and reproduce their supply structure.

The composition of a supply chain, in which gradually different profiles in the sources and specific supply typologies appear, varies the service and the contribution required of the suppliers, in a way proceeding backwards along the chain itself. At the first levels, that is, in the proximity of the final assembler, the critical factors are quality, the level and extension of service, the technological content and the system integration capability offered by the supplier. At the final levels, the cost tends to become top priority. The managerial behaviour and the entity of the co-operative contents in the supply activities thus vary according to the position of the supplier within the chain.

A "Holistic" View of the Supply Chain

The articulation of the supply chain according to specific stages would lead one to suppose that the final assembler tends to focus his attention on the phases that are in his direct proximity, that is, he only takes care of procurement from direct sources. In reality, as responsibility for R&D, quality, etc. is transferred to suppliers of the top tier, the importance of an integrated management of the whole supply chain grows – the buyer is made responsible for the procurement of his direct suppliers. This is mainly due to two orders of factors:

(1) Attention to the total cost shifts attention to the cost incurred in all stages (covering downtimes, excessive set-up times, quality inspections, rejects, reworks, storage, etc.) rather than the simple monetary value of the purchase. Thus there is a joint effort (on the part of the buyer and the supplier) to reduce costs along the entire supply chain.

(2) There is a need for control and care of the entire flow. The detailed analysis of the supply channels of the actors involved can provide a more complete view of the storage times, a greater comprehension of the processes, a more immediate identification of the phases and the path of the logistic flow, and the points at which there is the largest obstruction to product flexibility (the points where the opportunities for a future use of a component shrink the most)[20]. Finally, from the joint effort it

is possible to draw a clearer picture of the supply network, so as to prepare steps to increase efficiency and speed[21].

The attention to the total cost and the need to manage jointly the entire logistic flow trigger actions that are the responsibility of the companies forming the supply chain; the corresponding choices are thus evaluated from an inter-firm point of view, that is, according to the logic of integrated management of the supply chain.

Christopher[24] observes that the increasing attention given, in relatively recent times, by managerial literature to the problem of supply chain management represents a natural development in the study of logistics management. The latter focuses mainly on the optimization of internal flows, while supply chain management examines the links and management of these flows within the entire logistics net (internal and external).

The Extension of the Sourcing Area

There are few references in the literature that quantify the variations in the extension of the sourcing areas over the last years. One exception refers to the automobile industry, where Bertodo[25] has found an expansion that extended over the 1980s and is still in progress. It has, on average, led to the main producers reducing the proportion of parts sourced from traditional national suppliers by some 10 per cent during the 1980s. Moreover, the international literature furnishes a series of qualitative contributions from which it is possible to deduce a tendency towards the expansion of the sourcing areas[26-28].

Traditionally, the most commonly recognized benefit that has driven and is still driving companies to seek component supply from a wider geographical area has been lower costs (less expensive labour, tax advantages, less restrictive work rules, etc.)[29]. Other motives are frequently being added to this:

- One motive is the success of worldwide competitive models, particularly in certain sectors. The push towards globality in the design of sources and the logistic flow is given by these models[30].
- The growing need for access to worldwide competence and distinctive capabilities (in terms of quality, innovation, etc.) is another motive. In particular, the high rate of development and spread of technology (together with the ever-increasing quantity of resources needed for its support) force the company to focus its innovative efforts on a few strategical steps while obtaining the remainder from wider supply markets – innovation is identified and acquired wherever it is generated.

On the other hand, there are a series of problems inherent in the extension of the sourcing area, in particular:

- problems connected with the distinctive styles of negotiation, languages, cultures and customs, infrastructural contexts, business practices of sources;
- problems connected to different norms, legal and political environments, modes of exchange and payment (think of the importance of counter trade), different exchange rates, handling of legal suits[31];
- conciliation with the need for relational proximity induced by the new models of relations. McClenahen observes: “When suppliers are an ocean away, can a manufacturer realistically lower inventories, cut costs, ensure quality, and reduce waste…?”[32]. The close interaction between buyer and supplier that characterizes the new models must then be guaranteed by an efficient communications network and supported by a global informative pattern. The organizational integration, if it is essential, must be accompanied by an extended logistic infrastructure beyond the national borders.

The number of literary contributions dedicated to the compatibility between JIT-TQC practices and international-global sourcing has undergone a marked increase over the last few years, an increase which reflects the reality of the problem. Alongside the contributions which exclude, in substance, a co-habitation between these approaches, there are studies which explore the concurrent use. Among these let us mention the work of Fawcett and Birou[33]. On the basis of an empirical research carried out on a sample of companies in the USA, Fawcett and Birou[33] state that:

- It is possible to adopt strategies of international-global sourcing connected with JIT sourcing practices if these are upheld by an adequate logistic infrastructure (through the development of strategic alliances for the sharing of logistic services, the construction of warehouses to function as transit buffers, the selection of suitable carriers, EDI networks for information exchange, and the re-evaluation of transport methods such as air freight, traditionally associated with high costs, etc.).
- Programmes for global sourcing are more frequent than those for JIT. The latter, however, influences to a greater extent all purchases, and tends to permeate the entire sourcing strategy of the company. Vice versa global sourcing is carried out on a more selective basis.

Towards a "New" Purchasing Function

The purchasing function, which must interpret relations with suppliers in a new way and solve the problem of supplies in a chain that is larger in size and more complex, is going through a stage of rapid evolution. The task is thus becoming modified – from the identification of the cheapest sources, and from the objective of simply supplying the productive departments, to the management of the interfaces with the complex of units which, through the supply, take part in the creation of value.

This evolution in the activity and in the supply relations leads to a redefinition of responsibility, arrangement and organizational structure of the function. From a simple exchange of an object (material, component, subsets), the supply transaction has become more often the exchange, sharing and co-ordination of a complex of activities and services (in design, production and logistics) which lead to the realization and delivery of that object. The supply activity thus becomes a responsibility that is not enclosed within the boundaries of a single organizational unit. The function attains a greater sophistication visible, for example, in the higher qualifications of the purchasers, in their more ample access to information, the wider range of decisions, and in general the more marked strategic impact of their activities. The purchasing function "has become the General Manager of the external factory – making sure that the supplier's last operation is in synchronization with the company's first operation inside the plant"[34]; so the function abandons the role of simple operative support of the productive activity and assumes a proactive/strategic role in the control of the supply markets, the selection and co-operative management of the suppliers, and the integration of the phases of the operation chain involved in the purchasing activities.

Widening the spheres of responsibility of the function increases the area of interaction with the other functional sectors. The selection of suppliers, for example, is the fruit of an inter-functional effort made by a group of experts with different skills (design, quality, production, accounting, etc.) who evaluate the dynamic situation of the supplier, which is also his potential for development in the future. More generally, the increasing need to overlap activities leads to a more intense collaboration between purchasing and other functional areas[35]. The function is thus seen to attribute managerial responsibility for the multifunctional interfaces to suppliers, invested with the role of linking the operational activities at the upper and lower ends of the chain (see Table I).

Conclusions

The "supply environment", though relatively stable during the 1970s, today reveals itself to be the most critical area in the creation of added value[1]. A supplier is no longer required to conform simply and rigidly to the specifications, but rather to have the ability to incorporate a greater value into the object supplied and to relate proactively with the buyer. As a consequence, the model of buyer-supplier relations is changing now it

Table I. *Evolution of the Purchasing Function*

	Purchasing function	
Characteristics	Operational subsidiary support	Proactive strategic role
1. Organizational position	Subsidiary unit of the production activities Scarce interaction with top management	Transverse and barycentric Close interaction/integration with the top management and other functions/activities of the production line
2. Information access	Limited	Ample access to information, informative integration with the external and internal work stages
3. Main task	Reduce to a minimum the unit purchasing cost	Minimize total costs and create added value along the entire supply chain Develop a supply network, responsibility also for transport and carrier choice and control
4. Decision issues	Based on price: "get the most for the least"	The decisional process ● Use analytical and forecasting instruments to monitor and interpret the trends in the supply market ● Involve a variety of professionals (team buying) ● Can be projected over medium- to long-term period
5. Orientation	Towards the outside: control of the supply markets	Link between outside and inside Management of the multifunctional interfaces to suppliers

tends to be enriched with co-operative contents. The supply transaction regards a medium- to long-term period and requires joint efforts right from the initial phases of product development. Though co-operation is often overemphasized to the point of evoking situations of unconditional and harmonious reciprocal trust, the evolution taking place marks the start of a new era in buyer-supplier relations. However this change is encountering obstacles, especially in the Western context. The purchasing function is evidently the sphere most touched by the transformations taking place, as it is invested with responsibility for linking internal and external activities.

In conclusion, a sourcing structure able to uphold the competitive profile of the company effectively must be able to develop, interconnect and manage the rings constituting a supply chain composed of relations made potentially co-operative by operative interdependences and frequently stretched beyond the traditional sourcing areas. From being a department on the border between the exterior and the interior, the purchasing function has thus found a central role inside the logistic and productive system which crosses the boundary between single companies.

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10. In this regard it seems interesting to note the results of an empirical investigation carried out by Cusumano and Takeishi[11] on a sample of suppliers in the USA and Japan (automobile sector): in the Japanese units the average number of suppliers per part appears to be in a state of moderate growth over the last few years and they have gradually abandoned values approaching unity. At the same time the average length of contracts and the quality and cost performance of the suppliers increased. Two comments can be made on these data: first, the single source, which some lines of study tended to describe as a fixed stage along the way to the buyer-supplier partnership, should be carefully reviewed. Multiple sourcing can play an important part in controlling and maintaining the supplier's commitment to the buyer's goal. Second, the Japanese model, often examined as a static example, should be analysed in dynamic terms – even in the Japanese context experimentation is in progress.
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16. Turnbull, *et al.*[17] observe that it is the vertically divided structure of the Japanese motor industry which encourages the development of long-term co-operative relationships between buyers and suppliers. The assembler governs a restricted number of suppliers (from 160 to 300), as compared with 800 to 2,000 for European assemblers[18], with which it is possible to have a high productive and logistic congruency, a high amount of information exchange and joint efforts in the product development. This close interaction is aided (and some authors hold made possible) by the fact that the assembler firms own part of the capital of the major suppliers.
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21. Going back to JIT, the adoption of corresponding methodologies is inefficient if their implementation does not involve the network of companies which make up the supply chain[22]. The supplies in JIT require logistic and productive congruency between the upper and lower ends of the chain. The supplier must not only be able simply to supply, but to produce JIT, that is, work with small lots and frequent deliveries of high quality, in comformity with the productive plans elaborated at the lower end. This brings the buyer and supplier together; the former shares in the problems of the latter. Thus interdependence between the rings of the supply chain is increased. That which Oliver[23] calls "the holistic orientation promoted by JIT" induces a unitary view in the management not only of internal activities, but especially of "external" ones.

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Alberto De Toni is Associate Professor of Operations and Production Management, Guido Nassimbeni and Stefano Tonchia are both Researchers at the Instituto di Economica ed Organizzazione Aziendale, Università di Udine, Udine, Italy.