THE ROLE OF SUBCONTRACTORS IN THE COMPETITIVENESS OF BUILDING COMPANIES AND THE INTEGRATION OF VALUE CHAINS
Subcontracting in Construction Companies

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Abstract

Nowadays, subcontracting strategies are widely used by many companies in the construction industry to reduce some activities in the construction process and to eliminate part of the costs with welfare taxes.

Furthermore, in the deeply changing scenario presently faced by the building sector, subcontractors become one of the main agents for such companies.

This paper proposes to analyze the subcontractors’ power in the competitiveness of construction companies and their value chains, in order to improve contracts and contractual relationships between them.

The main topics developed are: the identification points which make subcontracting strategy an important subject for the construction building companies; a conceptual study dealing with subjects such as work organization, value chain, benefits and disadvantages of subcontracting; a case study with two building construction companies in Sao Paulo, Brazil, focused on contracts and contractual relationships between them and their subcontractors.

Keywords: Building Companies, Subcontracting and Value Chain.
**Introduction**

The present work’s purpose is to analyze the role of subcontractors in the competitiveness of building companies and the integration of value chains, emphasizing the subcontracting strategy as an alternative for construction companies to increase their competitiveness in the building construction sector.

Nowadays, lots of building construction companies are trying to improve their efficiency in the constructive processes, which ended up contributing to a reorganization of company structure through the definition of a competitive strategy [Souza and Formoso (1993)].

One of the strategies adopted by companies is subcontracting, which can reduce some activities in the construction process, with the transfer of a significant part of the work to third parties [Farah (1983)].

Cardoso (1996) defines as one of the “new ways of rationalization”, the “flow management and the partnering” that seeks to establish an improvement in company management concerning their suppliers.

We try to analyze the main aspects relating to the subcontractors’ role, characterizing the new conditions of the sector which are leading construction companies to use subcontracting strategies, as well as its advantages and disadvantages.

A case study is presented here of two building construction companies from São Paulo, Brazil, which tries to emphasize the main reasons taking them to use subcontracting.

**Sector conditions leading construction companies to the practice of subcontracting**

As characteristics that could be considered as a rule for the construction sector in Brazil and which directly affect the competition between companies we have [Cardoso (1996)]:
- the low standardization and industrialization; the production in loco; the fragmentation of the sector; the low specialization; the low capital intensity; the weak competition; the informality of the sector; the absence of politics for the sector; the financial-commercial logic; the lack of cost control; the low level of labor organization; etc.

As factors of an economic, financial, commercial, legal, technical and social nature, we have:
- increase of interest rates, the crisis of the Financial Habitation System, the lack of financial resources for the sector, etc;
- the fall of the prices of materials, the increase of labor costs, the fall in the habitat of price unit, the opening of the markets to the international competition, etc;
- the creation in the end of 1990 of the Code of Customer Defense, the opening of ports, the changes in labor rights, etc;
- the demand of a minimum operation size, the increase in the content of technical works, the increase in the importance of logistics aspects, the appearance of new products and techniques coming from other countries, the increasing complexity and growing variability of operations, etc;
• the change in the consumer’s profile, the improvement in the standard of living, the importance of administration labor, the arrival of new professionals to the sector, safety rules (NR-18), the decrease of qualified labor, better organized workers, modifications in labor rights favoring workers, etc.

Seeking to find the new operation rules in the search for the technical and economic logics, Cardoso (1996) analyzes the five forces of the competition proposed by Porter (1989) for the construction sector:
• the new-comers, emphasizing the importance of the opening of markets that led to an increase in the competition with foreign companies;
• the customers, who, through the creation of the Consumer Defense Code, acquired an influence and an increased negotiating power, which resulted in the demand for more efficiency in the companies’ performance;
• the substituting products, whose presence has not been significant;
• the sector’s competitors, who have gained in strength due to the problems of financing habitations, which led companies to abandon the logic of commercial and financial effectiveness, start a search for productive competence instead, and;
• the suppliers and subcontractors, who have shown themselves to be the most significant help for a company to get to reach its effectiveness, since a series of factors was observed that conditioned to a new relationship with such actors as: the complexity and the growing variability of operations, the importance of random phenomena, the increase in the technical content of civil works, the increase of the importance of mastering the logistic aspects, the importance of labor management and finally, suppliers and subcontractors started to acquire a previously inexisting negotiating power.

For a broader understanding of these new agents – subcontractors - acting along the productive company chain, it becomes necessary to illuminate the services subcontracting under the scope of work organization.

**Work Organization Strategies**

According to Cardoso (1996) the "main" companies can no more their problems associated to labor use and the administration (formation, qualification, motivation etc). From now on they must count with the capacity of subcontractors in helping them to overcome such obstacles.

Trying to position in a competitive way inside the construction industry sector, a lot of companies have also been adopting strategies about labor organization that privilege subcontracting, considered as a specific form of vertical integration known as almost-integration [Harrigan (1983), Porter (1991) apud Villacreses (1994)].

Highlighting the quasi-company concept, which can be classified as a vertical integration strategy of the partial type, Eccles (1981) comments that construction enterprises are executed by companies that have the option to execute certain services and to subcontract others. That is a form of guaranteeing the direct control in some tasks and a certain flexibility on the execution of others, which conditions the formation, on the parts of the
involved companies, of an organizational unit with stable relationships, defined as quasi-company.

Therefore, seeking to understand the service subcontracting strategy, which is now adopted by many companies in the construction sector, a study follows of the main characteristics of that type of strategy, from the point of view advantages and disadvantages.

**Subcontracting**

For a better understanding of subcontracting, the knowledge of some concepts is necessary, such as desintegration, outsourcing, subcontracting and partnering;

- **Desintegration**: consists in the process of acquisition of products and services previously produced by the company [Villacreses (1994)]. That can happen of two ways, outsourcing or subcontracting;

- **Outsourcing**: it is characterized, according to Villacreses (1994), for the search of products and services that are part of the of the company “mean” activities, that is, of the support activities (ex: cleaning, conservation, surveillance, accounting, etc.);

- **Partnering**: according to Brandli (1998) the CONSTRUCTION INDUSTRY INSTITUTE defines partnering as "a commitment of long duration between two or more organizations with the purpose of reaching common business objectives to enhance the efficiency of each participant's resources". In other words, partnering are stable relationships that bring benefits for both participants. The base of partnering is trust and honesty. Its great advantage is the possibility to obtain the advantages of vertical integration without some of its disadvantages;

- **Subcontracting**: it is characterized by the search of products and services that are part of the companies “end” activities of the company [SEBRAE apud Villacreses (1994)].

Pagnani apud Brandli (1998) consider the subcontracting as a juridical-economic relationship between two agents that inserts, as characteristic a approach, substitution (the company subcontractor executes, in the contracting party’s place, the operation, with technical and financial risks) and the subordination (the subcontractor is guided according to the contracting party determinations).

**Subcontracting in the construction industry**

According to Villacreses (1994) the construction companies that execute the entire work without the subcontractor’s are rare contribution. The non-adoption of this procedure would request a great amount of men and equipment that would be, at some moment, sub-used.

Facing that reality, two possibilities have emerged: to hire and lay out or to use subcontracting. The restriction to the first strategy is the existence of costs concerning relating to social welfare responsibilities relating dismissals. Besides, one cannot count with the certainty of labor availability precisely when it is needed for the execution of the activities.
Another advantage of subcontracting according to Farah (1992) is the possibility to concentrate the efforts on other activities, external to the production process. This procedure makes the productive process more flexibility, capable of adapting itself to the intensification of variability and to better react the market uncertainties.

The adoption of the subcontracting strategy is a world-wide tendency, as much in the construction sector as in other sectors, with the aim of decreasing of payroll and increasing flexibility. However, subcontracting leads to different frameworks, according to each country’s characteristics [Brandli (1998)]. Such fact is acknowledged by Brandli (1998) as follows:

- Japan: two categories of subcontractors exist - big companies that get involved from the projecting stage to maintenance and smaller companies, dedicated to the supplying services and materials in punctual activities (specialized companies);
- United States: the transfer of activities it is made by specialized contractors that possess a global knowledge about their activities. They compete on projects, periods and costs. They take responsibilities for their performance and work significantly in trouble shooting;
- Europe: the most common is the existence of a general contracting party that subcontracts all the activities for the work concerned, using specialized subcontractors appointed by other general contracting parties, engineers or architects;
- Brazil: the construction companies, in general, transfer a part or the entire production third parties. According Cardoso (1996) construction companies in Brazil started to execute more noble tasks from a strategic point of view, those referring to the technical and financial aspects, such as elaboration of projects, purchases and supplies, supply of heavy equipment and installation of the building site.

Recent researches show high subcontracting degree in Brazilian companies. The CONSTRUÇÃO magazine (July 1998) presents a study according to which 95% of the contemplated companies were using subcontracting in at least one activity.

In another research Anitablian and Cardoso (1997) verified that 100% of the fifteen studied building companies subcontracted at least one service, and that 33,3% of these subcontracted all the services.

**Types of subcontractors**

Villacreses (1994) classifies the "several types" of subcontractors in three categories, depending on the service type:

- Subcontractors of basic activities: constituted mainly by concrete, masonry, masonry coatings and ceramic coatings;
- Subcontractors of technical specialties: they execute activities such as electric facilities, hydraulics, air-conditioning, among others;
- Labor or materials subcontracting specialties: painting, floors, windows, glasses, external coatings, foundations and cleaning are among the most important.

The success of an enterprise depends on the degree in which subcontractors have been engaged adequately and managed. Here is were the importance of establishing coherent,
just and equal contracts enters, that determine the responsibilities of each parties intervention clearly, and promote the participation of both towards a better solutions.

**Subcontracting advantages**

Below are introduced some of the advantages obtained when using the subcontracting:

- **Flexibility Improves**: flexibility can be defined as the ability of the company in responding to market changes. According to Inrie apud Brandli (1998), labor subcontracting improves the functional flexibility (the workers’ functions), of volume (number of workers) and financial of the company (smaller fixed costs).

- **Productivity Increases**: since, in a general way, the subcontracted teams are specialized in certain services, they start to present a larger productivity when compared with the company’s own labor force. This probably happens due to effects of repetition, learning and concentration, besides the use of work organization methods [Villacreses (1994)].

- **Improves the Product’s Quality**: if qualified workers are used, the specialties of the labor take better quality products. However, according to Brandli (1998), subcontracting leads to control and coordination problems that can result in low quality products. Okoroh and Torrande apud Brandli (1998) on the other hand, maintains that the quality of the products is not affected by the main contracting party’s competence, and attributed it exclusively to the subcontractor’s performance.

- **Elimination of Sub-used Labor and Equipment Maintenance**: now the companies that possess enough work fronts to provide services to the whole production team, maintaining it continually busy, are rare. This condition extends to the equipment that would be sub-used.

- **Easiness in Costs Control**: the use of subcontractors with contracts of fixed price facilitates costs control and reduces the responsibility of the manufacturer's supervision [Eccles (1981)].

- **Reduction of Delays**: as the productivity services executed with subcontracted labor is larger, if there is good programming and planning of the tasks and if other external factors don’t to act directly, a reduction of delays results as natural effect.

**Aspects to be observed**

- **Transaction Costs**: the costs of commercial transactions can be very high if to each new service the contracting party resorts to the market offers, analyzing proposals by several subcontractors for each activity. These costs represent considerable values that also befall to the subcontractors, since they must formulate proposals to be presented to the contracting parties [Villacreses (1994)].

Continuous associations among the agents can solve this problem since spend smaller amounts of time and resources to each new contract. These associations can also reduce
the uncertainties on future projects. The wait for future work acts as incentive to the good operation of these relationships.

- **Training**: this perhaps is one of the aspects of the subcontracting that more lack of attention. The contracting parties tend to review this responsibility of the training to the subcontractors, that most of the time don’t dispose of physical resources and, or, financial to promote this training [Brandli (1998)]. The contracting parties also believe not to be advantageous a labor that will be circulating for the market to workout.

- **Work security**: an aspect that shows up when using subcontracted labor is the indifference, as much of the contracting parties as of the subcontractors, in investing in safety programs. The subcontractors try to make the contracting parties responsible for safety, who, on their turn, have no interest in training workers who will later on be circulating in other companies of the sector [Brandli (1998)].

- **Technological Innovation**: the current existing contract forms do not favor technological innovation, since the contracting parties do not try to transfer to the subcontractors the technology already acquired by them.

- **Waste**: a critic frequently made to the subcontracting strategy is that it provokes a bigger waste of materials. The justification is that subcontractors only worry about finishing the services and are not concerned with sparing material. The solution for this problem can be the establishment of contracts where the subcontractors also themselves to supply the whole material.

- **Worker’s Motivation**: as the workers' relationship with the company is insecure, or simply temporary, they lack an identification sense with the company, and they can lose motivation [Villacreses (1994)]. However, this negative aspect can be overcome through the establishment of partnering among contracting and subcontracted parties that guarantee future contracts, motivating the labor force with the possibility of new jobs.

- **Waste of Production Process Control**: Beardsworth apud Brandli (1998) states that the subcontracting strategy provokes insecurity in the company management because of the amount of independent organizations that must be coordinated and due the difficulty in controlling the productive process.

Vargas apud Brandli (1998) comment that if, on one hand, quality and amount of work control are made difficult by subcontracting, on the other hand, it can be observed that the labor force control is facilitated by the fact that the totality of the subcontracted services are paid with a basis on the physical production.

However, an aspect raised is that subcontracting reduces the supervision responsibilities, besides transferring several risks to subcontractors.

Cardoso (1997) says that it is not subcontracting that provokes the loss of control of the production means on the part of the company, but that, on the contrary, it can help it to face this aspect and to better dominate it.
• Coordination of Subcontractors: the subcontractors that work in more specialized areas tend to have better control processes, whereas those responsible to the execution of traditional activities seem to entrust the contracting parties with the duty of supplying them with coordination strategies.

It is advisable the development, on the part of subcontractors, of traditional tasks, of organization forms, coordination and standardization of the information flow of the different enterprises. There is a clear need for the subcontractors of traditional tasks to have access to technical and managerial knowledge [Bennett apud Villacreses (1994)].

• Planning and Programming: a critical frequently made to subcontracting is that it makes the planning process difficult to operate. The control executed by the contracting party is limited to the fixation of the starting date of the activity, with the subcontractor estimating the end date, which frequently is not obeyed.

Villacreses (1994) suggests the involving subcontractors in planning stage. He stresses that this involvement is necessary to guarantee a commitment with the company, affirming that a close relationship between the different parties intervening in the constructive process is important to achieve gains in productivity.

Value Chain

To understand the possible sources of competitive advantage for a company it is necessary to treat each one of the activities separately. According to Porter (1989), the value chain divides a company in its activities of strategic relevance so that one can understand the behavior of the costs and the existent and potential sources of differentiation. Cardoso (1997) says that the value chain is useful for identifying all the activities that add value to the process or the product.

The value chain of a company is a part of a bigger whole that Porter (1989) defines as a value system, showing that the way the other components (designers, subcontractors, suppliers) execute their activities has directly determines the company’s competitive advantage.

Cardoso (1997) divides the activities developed by the company into two families denominated main activities (Commercial, Conception and Budget Studies, Preparation Studies, External Logistics, Site layout Logistics, Execution and Technical Assistance) and support activities (Management Control, Human Resources Management, Technological Development, Quality Management and Communication and Information).

It is interesting to notice that in spite of the separation of these activities, they do not occur in an isolated way and should therefore be negotiated together. These activities are related by means of links. The best coordination of these links is a potential source for incrementing the competitive advantage.

A correct management of these links requires a larger effort than the one employed in the simple management of the individual activities. However, if well executed, it produces, as a consequence, more significant results.
Porter (1989) says that the coordination with suppliers as much the negotiation with them is important for the competitive advantage. One without the another results in the loss of opportunities. He also stresses that the exploration of these links also demands efficient information systems.

The vertical integrated production defines which value activity will be executed by the companies and which one will be execute by the suppliers. The companies can chose to buy the components or to produce them, to render technical assistance and engineering services or to contract them with suppliers. Whether the integration or the desintegration reduces or not the costs or if it accentuates the differentiation will depend on the company and the activity involved [Porter (1989)].

The importance of the value chain consists in the identification of the potential benefits of integrating or disintegrating production, identifying the role of the vertical links [Porter (1989)]. It can also play an important role in determining the organizational structure, comparing the benefits of integration and desintegration.

**Coalitions and partnering**

Porter (1989) presents the concept of coalitions as long agreements between companies that go beyond normal market transactions. Coalitions work as a form of enlarging the scope without enlarging the company, through the recruiting of independent companies to execute certain activities or for the union with independent companies in order to share the development of some valuable activities.

The great advantage of using coalitions resides in the possibility of obtaining cost advantages or distinctive features without a true integration, overcoming the organization difficulties and coordination that frequently happen with purely independents companies [Porter (1989)].

The concept of coalitions defended by Porter (1989) is similar to the definition of partnering presented previously in this work, both representing stable and mutually beneficial relationships between independent companies.

**Case Study**

The case study was approached as the best way to understand the strategy of subcontracting services, which has been adopted by a lot of construction building companies in São Paulo. It had as for its main objective to analyze the reasons that led building companies to use the subcontractors in their production structure. The study contemplated only 02 (two) building companies (A and B) and consisted in the application of a questionnaire extracted from the work accomplished by Brandli (1998). Following is a synthesis of the issues approached in an interview with the technical director (company B) and with the building site engineer (company A) of the respective companies.
Subject 01: Which are the main reasons that have led the company to subcontracting the production labor? Did you subcontract only labor? What about the materials, equipment and tools?
Subject 02: Which are the main approaches considered when contracting this labor force?
Subject 03: What about the controlling this labor force in the building site? Will the company end up losing the power of decision and control of the services and limiting itself to managing the project?
Subject 04: How is the relationship with the subcontractor? Does the subcontractor get involved in the designing phase and in the decisions concerning the service to be executed? Are they the responsible agents for controlling the services executed? Do they supply technical assistance after the end of the services? Do they have their own methods of service quality control?
Subject 05: Wouldn’t it be better to find some subcontractors to work together in partnering?
Subject 06: Concerning the negotiation of the project: Would they be better qualified and demanding?
Subject 07: Have they met the quality requirements for the execution of the service? What do you think should be changed concerning this labor force?

Characterization of the companies

Company A is in the construction/building sector for approximately 10 years now and works with residential and commercial buildings only in São Paulo. It has a small payroll, since it subcontracts 100% of the services, and only acts as a manager or a general contractor. It is constituted of one technical director, two coordinators and six engineers, presently responsible for six building sites. The company is presently implementing the ISO 9002, which demonstrates a certain concern with the company’s operational procedures.

Company B is in the construction sector for more than thirty years. Along this period it has executed commercial as well as residential buildings, especially in São Paulo. It has always used subcontracting as a company strategy, maintaining a small administrative structure and subcontracting 100% of the services. Its personnel are composed of one technical director, engineers and a foreman in the proportion of one for each work. Presently the company has two building sites, and intends to participate in the QUALIHAB program (similar to France’s QUALIBAT).

Answer analysis

Company A subcontract 100% of its work force. It aims to become a construction (supervision of works) manager, so as to eliminate a fixed cost with the work forces. Usually it works with one basic trade subcontractor (structure and masonry labor) and with several specialized labor subcontractors for services such as like painting, electrical, heating, plumbing and foundations. Their subcontracted is directly responsible also for materials, equipment and tools, which facilitates the information processing in the purchase departments and the control of the labor force in the work site. To selected their subcontractors they approach the following aspects: a) the company’s technical résumé; b)
technical visits to the work sites they are managing before signing the contract; c) indications by other companies; d) analysis of the economic situation of the subcontractor and e) whether they supply receipts or not. In reason of a performance in the project just as a service manager, it is easier to follow up and control the services. The control of the execution and quality services is to the subcontractor’s responsibility, which are becoming more and more qualified due to the current demands of the market. The subcontractors do not participate in the elaboration at the designing stage, since this activity is specially subcontracted. The subcontractors are formally contracted after the end of the design stage. As to building maintenance after construction, the contract specifies that the constructive responsibility belongs to the subcontracted. One of the greatest difficulties pointed by the building company is the contract elaboration, such as for instance to foresee what can happen in the "middle of the road" or how to synthesize the interests of those involved. The company points out that it doesn’t work with only one subcontractor, since there exists a certain insecurity in the permanence of the subcontracted in the market. It also highlights the importance of collaborating with more than one subcontractor as a form of "recycling knowledge ". Finally, it highlights that the subcontractor have to learn to better organize themselves, as much in the service front as in managing their company, besides training the labor force in order to be able to offer a better quality service.

Company B justifies the use of subcontracting because the use of a small personnel facility the control of labor. It points out that for the more specific services (painting, electric, hydraulic and roofing) the material is to the subcontractor’s responsibility, while basic services (structures and masonry) are supplied by the building company. As for the company’s productive structure (general contractor), they work basically to supervise the building site, where an engineer and a foreman are the main responsible. All the subcontractors below them being supervised by an employee entrusted by the general contractor. There exists a subcontractor responsible for most of the basic services (structures, masonry and coating) and the labor specialized subcontractors (painting, electrical, roofing). For selecting a subcontractor the main factor is whether they supply a receipt or not (see note 1) since most of the building sites are financed. An analysis is also carried out of the services accomplished (visits to the building site where the subcontractor was previously working before signing the contract) and indications by other companies. In order to eliminate some administrative activities and to promote the quality of the services, the company points out that it tries to work with the same subcontractor always, as in the case of the specialized subcontractors in electric, hydraulic and painting, who have been collaborating with the company for approximately 30 years. It also emphasizes the existence of a kind of partnering that actually represents a society in the project within a certain percentage - for example, they (the subcontractors) can have profits or units in the project. It points out that some subcontractors are starting to show a bigger "negotiating power", due to the current demand of the existing building companies in the market, which has been leading them to a better quality in the services. All subcontractors try to get involved since the designing stage in decisions on the service that will be executed, there being a great exchange of information. The technical assistance is to the responsibility subcontractor own responsibility, it being formalized as of the contractual stage, what ends up being a guarantee of continuity in future projects with the building company. As to the quality control methods, it is accomplished by the building company. During the course of the works in the building site, the relationship with the subcontractor

1 It’s a very common practice in Brazil to carry out a job without issuing a bill in order to avoid taxes.
happens through weekly meetings, which are always documented. Finally the company suggests that for a quality increment in the labor services it is necessary, first, to maintain a stable relationship and second, to provide improve the worker’s work conditions, who are the main responsible for the production and lack adequate working conditions.

In a general way, one can notice a growing use of services rendered by subcontractors in São Paulo, where building companies tend to work as managers or general contractors. Such fact conditions the building companies to the management and organization of several small companies (subcontractors) which shows us the importance of developing a better relationship with those agents who are part of the productive chain of a building company.

**Final considerations**

The strategy of vertical disintegration or subcontracting stands out as a good alternative to provide flexibility, a “dry framework”, productivity and reduction of transaction costs.

As we call attention to the increase use of the subcontracting for the building companies of São Paulo, we’d like to stress the importance of accomplishing new sector studies allowing a better knowledge of this strategy. When applying subcontracting strategies to the construction industry some disadvantages and important points remain that should be observed.

The use of partnering appears as a possibility to obtain and broaden benefits, and to decrease the disadvantages of subcontracting, through the maintenance of stable mutually beneficial relationships which facilities the solution of problems together. This alternative was proposed by Porter (1989) when approaching the negotiating of coalitions and by Cardoso (1997) when suggesting partnering as one of the “new production rationalization forms”. Company B, of the studied cases, showed that in practical terms the use of partnering brought some advantages to it, and that they have an interest in maintaining them.

The truth is that before we speak of partnering, we have to highlight the lack of an "organic vision" of the whole productive process that still exist. The simple use of the services rendered by subcontractors does not exempts them from having the necessary competence for approaching directly the many difficulties faced by these agents, which reflect the building companies themselves.

A critique frequently addressed to subcontracting strategies is that it provokes the loss of control on the productive process by the general contractor. In the two cases studied the companies claim that subcontracting has been working as an ally, providing a wider control over the processes and aiding besides in the supervision of tasks, since there are men entrusted with the responsibility for the execution of each one of them. Counting with a small number of case studies, the present research cannot reflect what really happens in the whole sector, but it contributes for showing that some of the critiques against subcontracting strategies do not correspond to reality.
However, many aspects still exist and need to be explored by the own building companies concerning the contracting, organization and management forms with subcontractors, not to mention the problems with the labor force relating its qualification and training, which can involve the sector as a whole.

References


