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## OUTSOURCING IN COMPANIES WITH CUSTOM PRODUCTION: DECISION CRITERIA

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### ABSTRACT

Most of the outsourcing models include decision criteria that consider the scenario of companies with serial production, as it is verified in the literature. Thus, this paper aims to discuss the criteria for decision making regarding outsourcing by companies with production to order, that is, customized products. In order to do so, a qualitative, exploratory and descriptive study of the multiple case study type was developed, considering three dimensions of analysis: business arrangements, essential skills and the outsourcing environment. The results revealed two perceptions about outsourcing in an on-demand production scenario: one optimistic and the other that considers outsourcing as an alternative to solving immediate problems. The following decision-making criteria regarding outsourcing were emphasized: emphasis on essential competency, value aggregation, solution to momentary problem, transformation from fixed cost to variable and cost reduction. It is concluded that the results approve the adoption of this evaluative proposal for production environments under order, and the defined dimensions and the proposed instrument can be used in similar production environment scenarios.

**Keywords:** Outsourcing; Essential Competence; Production Environments under Order; Decision Criteria.

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## 1. INTRODUCTION

The increasing elevation in the level of competitiveness requires a constant search for alternatives of management in the business, that provides the maintenance and the expansion of the market that the companies compete for (Valois et Almeida, 2009). In this scenario, among the operational management strategies, outsourcing (outsourcing) arises as an expression that refers to the contracting of third parties for the execution of work relevant to the activities of the contracting companies.

Outsourcing refers to the transfer of support activities between companies, while subcontracting deals with the outsourcing of tasks related to the company's social objective (Pineiro, 1999). Outsourcing is a practice of passing on activities and responsibilities, in which part of the set of products and services used by a company is provided by an external supplier in a collaborative and interdependent relationship. However, the difficulty remains due to a clear definition of what is a middle activity and an end activity. Thus, for the purposes of this study, outsourcing is treated as synonymous with subcontracting (Pires, 1998).

Outsourcing is one of the main pillars for designing relationships between companies and, despite their wide spread through business cases and documentation available on the internet or in publications, there is no generic structured procedure that assists in their development process (Franceschini et al., 2003). However, there are two important points to be considered when making outsourcing decisions: cost reduction and production reorganization.

Thus, in custom production companies, outsourcing allows production flexibility, allowing a rapid adaptation of the company to changes in the market and the intensification of the use of assets which, when owned by the company, tend to be underutilized. Based on this motivation, this study presents a study that aims to identify the main criteria involved in the decision making regarding the outsourcing of essential activities in companies with production environments of the custom type. It seeks to understand whether the criteria and models of outsourcing used by companies that have serial production are also useful for companies that produce to order.

For this, a research of exploratory nature, of descriptive character and qualitative approach was developed (Gil, 2002; Minayo, 1996). In this research, which was based on three dimensions of study (analysis of the business arrangements, essential competences and the outsourcing environment), an investigation was carried out with nine metal-mechanic companies that have systems of production of the type to order.

Some of the typical questions for companies in this sector are: (i) When to outsource? (ii) What macro processes or activities should be outsourced? (iii) In which situations to outsource? (iv) What factors are evaluated in outsourcing decision making? Another situation is the evaluation of costs, mainly due to the difficulty of this type of company in realizing the costing of its products in a fast and precise way, precisely because it is a customized product.

The next section presents the theoretical framework used in this study, followed by the methodology, analysis and discussion of the results and, finally, the final considerations of this article.

## 2. BIBLIOGRAPHIC BACKGROUND

### Outsourcing Decision Making

Companies perform a set of activities that are divided into designing, producing, marketing, delivering and sustaining a particular product or service; thus, this concept separates the enterprise into activities through which it is possible to understand cost behavior and sources of differentiation. Primary activities comprise physical creation, marketing, delivery, support and product support, and support activities provide supply of inputs and infrastructure that support the activities of the chain (Brand, 2004).

Several activities in the value chain are carried out by external agents, and in such cases a central company structures, coordinates and manages the work of third parties along the chain, implying new collaborative approaches and better management of people, processes and technologies.

In terms of people, it becomes evident the need to manage the personnel and outsourced employees at different levels (low, medium and high qualification, from administrative work to technical activities). Regarding the process approach, issues related to quality management, productivity and deadlines arise. In the technological issue, the company must be able to receive an increase in the information flow (Souza, 2011).

Concentrating the company's own resources on a set of core competencies can achieve a competitive advantage, while providing unique value to customers. In this context, it is perceived that outsourcing becomes a value-adding tool for companies, supporting the concept of essential competency, because, with the outsourcing of activities, companies focus on their core activities (Quinn et Hilmer, 1994).

Outsourcing consists of hiring, through the provision of services, companies specializing in activities that do not



need to be developed in-house, which can lead to structural changes, changes in culture, procedures and controls (Lindermann et Hansen, 2008). It is understood that the decision to outsource must be made after a complete and detailed evaluation of the technical aspects, guarantees, prices, interests for the business and legal irregularity of the supplier in generating a presumed employment relationship, besides the necessary quality of effectiveness and efficiency to be required by the partner.

There are many factors that must be considered before any decision is made, because hasty decisions based on timely comparisons make conclusions about the advantages and disadvantages of outsourcing distorted. Dedication to the business, cost reduction, absorption of know-how, replacement of fixed costs by variables and the use of new distribution channels are reasons for the decision-making process for outsourcing (Rezende, 2008).

In addition to this, organizations outsource services or activities without elaborating a systematic or planning, generally using the costs of services for decision making, thus seeking to minimize costs to decide to outsource without the long-term concern (Russo, 2007). For the decision to outsource critical activities and dependence on suppliers to achieve the company's strategic positioning, it is necessary to consider the heterogeneity of the resources or activities that are real sources of competitive advantage.

### Relevant points for decision making

In order to measure the points relevant to the decision making, an evaluation of the activities is considered, selecting those considered as non-essential to the organization

as possible items to be outsourced (Lonsdale, 1999). The decision-making process focuses mainly on short-term prospects, motivated mainly by the search for cost reduction in this period. Thus, a cost analysis is required, which involves attempting to measure the important costs associated with the two alternatives in perspective: doing internally or outsourcing. In this analysis, concepts of transaction cost economy are used (McIvor, 2000).

However, the distinction between essential and non-essential activities is considered to be a complex task, since these activities must ensure, in the long term, strategic analysis and evaluation of the true values. The essential activities related to cost analysis are divided into two phases: evaluating the relevant value chain activities, considering that all essential activity selected should be compared with the capacity of the external suppliers of this activity; and the total cost analysis of core activities, at which point the costs involved in doing at home or outsourcing should be identified (McIvor, 2000).

In this way, the decision-making process regarding outsourcing occurs with the objective of managing strategic decisions, economic factors and human resources, having a model proposal based on the contractor's vision. The combination of specificity with complexity gives rise to four types of relationships, as shown in Table 1, which seeks to present a map that details the main characteristics of the four types of relations presented by Franceschini et al. (2003) in the outsourcing process.

The conditions that may influence the ranking of activities for the activation of an outsourcing process are: the degree of importance of each criterion individually and the degree of importance of the force of the arguments needed to vali-

**Table 1.** Main characteristics of different types of outsourced relationships

	<b>Traditional supplier</b>	<b>Temporary relationship</b>	<b>Strategic partnership</b>	<b>Networking organization</b>
Objective	Resolution of an immediate problem	Achieve better skills	Creating added value	Better position in the future market
Relationship Type	Customer/Supplier	Hybrid between customer/supplier and partnership	Partnership	Partnership
Time	Short-term	Medium/long term	In the long term	In the long term
Strategy	Low	Registered for the purpose of outsourced process	Follows the strategy of the company	Company overview
Confidence	Not essential	About competencies	High and reciprocal	Maximum and reciprocal
Method of evaluating	Productivity, low price, reaction time	Efficiency, process improvement	Competitive advantage, profit	Innovation, creation of new markets
Pricing model	Low price	Based on shared cost and risk	Win - Win	Win - Win

Source: Prepared from Franceschini et al. (2003)



date the judgment that an activity is more strategic than the other (Franceschini et al., 2003).

According to Queiroz (2004), outsourcing is seen as an administrative technique adopted by companies in this third millennium, considering productivity and competitiveness as the main concerns of organizations.

In planning, it is important to develop decision-making to program outsourcing strategically, where the goals and interests in developing an organizational change for the company are defined. In the decision phase, in turn, an analysis of the information obtained in the previous phase is undertaken. In the search phase, the selection of suppliers and the pre-qualification of service providers are considered; while in the correction phase (partner's agent) contacts with the provider are made for possible adjustments of deviations and correction of problems. Lastly, during the evaluation phase (policy of the borrower), it is considered the monitoring of the execution of the services and an audit of the technical, quality, labor and administrative aspects (Queiroz, 2004).

It is perceived that the decision to outsource is an action taken by the top management, which becomes essential to support the success of the project and the companies that provide services. In this context, some recommendations are made regarding the decision to outsource: to verify carefully the applicability; analyze feasibility; justify and determine the need; measure and predict consequences; and manage the projects individually, since concurrent projects in the same area can generate the loss of important information and difficulties of adaptation of the supplier (Queiroz, 2004).

**Model for elaboration of an outsourcing project**

From the analysis of the literature, a method of analysis is presented in the survey of questions related to the outsourcing process. This is done through a checklist to be used during the development of the outsourcing planning project, with the goal of helping managers to move out of empiricism and effectively think strategically to balance enthusiasm with facts and data (Russo, 2007).

The first step is planning, which aims to identify the service or activity that will be outsourced and analyze all aspects relevant to the decision making regarding the implementation of the outsourcing project. The identification of the object of outsourcing is the most important aspect in any outsourcing (Russo, 2007). Other topics that should be considered in the implementation of outsourcing are related to the existence of advantages, disadvantages, risks and obstacles that can be overcome, maintenance of know-how,

number of disconnections and influence of organizational culture.

The second step consists of the preparation, when a mapping in the market is made in search of potential service providers and the way of measuring the service or activity to be outsourced is defined. During the selection of service providers, they are evaluated and analyzed according to the field of service, service differentiation, marketing conditions, logistics, costs, size, flexibility, competence, credibility, reliability and responsiveness (Russo, 2007).

Regarding measurement, the main points considered are the capacity, the tradition and the quality of the service provider to take over the contracted activities (Table 2).

**Table 2.** Main issues for the preparation of an outsourcing project

What services and activities will be outsourced?
What is the total number of people who will be fired, who will remain in the sector and who will be transferred?
What percentage of the employees will be outsourced in relation to the total number of employees of the organization?
What are the possible positive and negative consequences in the implementation of the outsourcing project?
What are the advantages and disadvantages of implementing the project?
What are the risks at strategic levels?
What are the most common obstacles?
Will there be transfer of technology (know-how)?
What are the difficulties of dismissal?
What is the repercussion with the unions?
What are the goals to be achieved?
What is the level of quality to be achieved?
What are the ways to measure service levels?
How to define the profile of service providers?
How to select the service providers?
How to achieve your defined goals in the project?
How important is the identification of the culture of the service provider?
How to define the cost-benefit of the project?
How to remunerate the service provider?
What are the important contractual clauses?

Source: Prepared from Russo (2007)



The third step consists of the formatting of the final document of supply, with information and specifications necessary for the decision making and choice of companies that will participate in the process of outsourcing. The decision points about outsourcing a service are not related to the elaboration of the outsourcing project, seeking economically attractive actions, through which competitive results are obtained for the organization contracting the service.

### Final considerations on the theoretical framework

Theoretical basis on outsourcing, analysis of productive arrangements, definition of competitive advantages, essential competences and analysis of the production environment on demand resulted in the identification of the decision points regarding the outsourcing or maintenance of essential activities internally to the organizations.

The business arrangements are directly associated with the joint organization of companies in order to create or consolidate competitive advantages among the members (Brito et Leite, 2008). According to Prahalad et Hamel (1990), the essential competencies of an organization are defined in activities that promote access to a wide range of markets, which contribute to the ease of perceiving benefits by the consumer and which are difficult to copy competition.

Based on this, the decision points regarding outsourcing are presented in Table 3, according to the literature, which mainly refers to the model of companies with systems of production series or high volume, suggesting that a better understanding of the subject is necessary in the scope of the companies with systems of production under demand (Lonsdale, 1999; Mclvor, 2000, Franceschini et al., 2003, Queiroz, 2004; Russo, 2007). In any case, such decision points can be an initial reference for the evaluation of a company with custom production systems.

**Table 3.** References and decision points regarding outsourcing

Decision points regarding outsourcing	References
Efficiency of costs	Mclvor (2000); Franceschini et al. (2003); Russo (2007).
Reorganization of production	Franceschini et al. (2003); Queiroz (2004).
Support from senior management	Queiroz (2004)
Supply Chain Analysis	Mclvor (2000); Russo (2007).

Supply environment	Lonsdale (1999); Queiroz (2004); Russo (2007).
Comprehensive and detailed assessment of technical aspects	Queiroz (2004); Russo (2007).
Activities to be outsourced	Lonsdale (1999); Mclvor (2000); Russo (2007).

Source: authors.

In this sense, and based on the notes of the theoretical basis, the following questions are highlighted as questions to be addressed in this study: (i) do the decision points used in the literature for serial production cases serve the production scenario under order? (ii) are the study dimensions chosen the most appropriate?

### 3. RESEARCH METHOD

#### Research features

It is a research of an exploratory nature, with a descriptive character and a qualitative approach (Gil, 2002; Minayo, 1996), which used the multiple case study method that is appropriate to situations in which it is desired to compare several cases (Cunningham, 1997).

Figure 1 systematizes the main phases of the work, with the referential and theoretical construction being the basis for the empirical part of the research. Therefore, the analysis of the theoretical basis, the selection of the case studies and the elaboration of the dimensions of the research allowed the elaboration of the instrument of data collection. From the data collection, a comparative analysis of the cases was carried out from the point of view of the theoretical review, reaching the results.

In this work a set of three dimensions was defined: the analysis of the business arrangements; essential skills; and outsourcing environment. These dimensions were based on central questions that are linked to the identification of the criteria used for decision making regarding outsourcing, analyzing how companies have organized to potentiate this decision in the face of obstacles. This discussion was addressed in the section of the theoretical foundation that deals with the points relevant to decision making.

The analysis of business arrangements evaluates the need to consider the division of the company's activities,

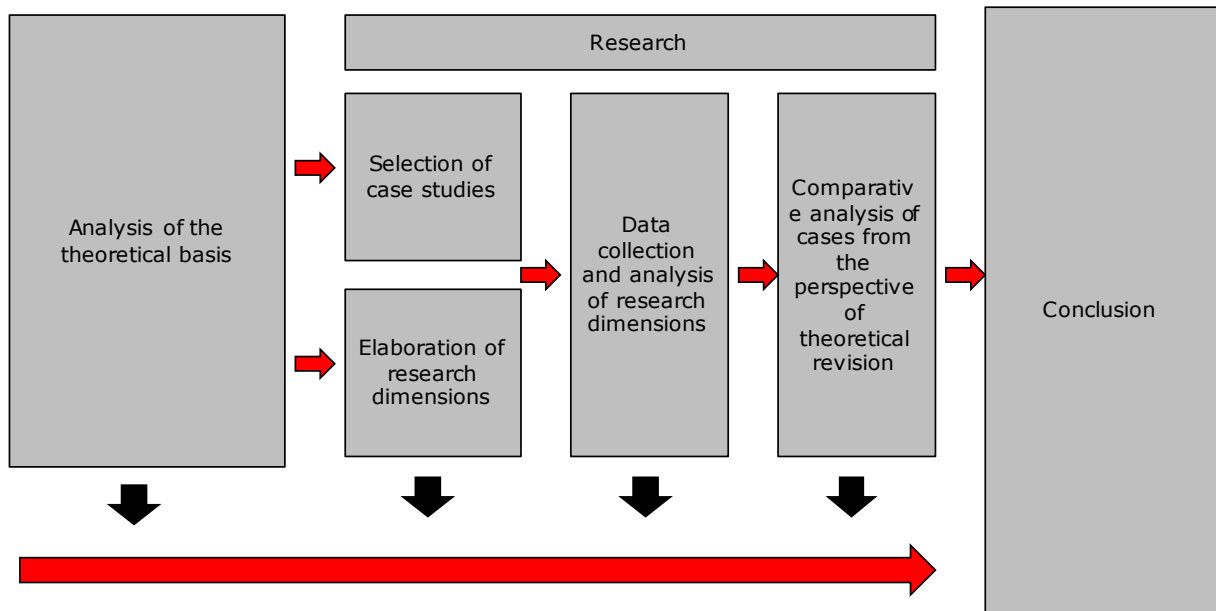


Figure 1. Phases of work  
 Source: authors.

allowing analyzing and understanding the costs involved in the value chain. In this sense, the following topics are analyzed: the activities of the organization; the mechanisms that the company has available to evaluate if the activities are profitable; dependence on the value chain; and value chain management and evaluation.

**Instruments of research and data collection**

In order to collect data and obtain more appropriate results, this research used four forms of data collection: documentary analysis, direct observation, participant observation and interview. Nine case studies were performed, and in each case a collection instrument was used according to the size of the organization, in addition to an agreement with the researchers’ restrictions in relation to each company studied.

The research instrument was developed in a questionnaire format, which was subdivided into three blocks: profile of the interviewees; characterization of the company; and evaluation of aspects relevant to outsourcing, consisting of 28 questions divided into three dimensions - business arrangements and core competencies, with seven questions each, and outsourcing environment, with 14 questions. Table 4 presents the relation of the attributes of the dimensions evaluated in each question.

Table 4. Attributes of the dimensions addressed in the research instrument

Attributes of dimensions
The activities of the organization;
The mechanisms that the company has available to evaluate if the activities are profitable;
Dependence in the value chain;
Management and evaluation of the value chain;
Identification of the essential activities of the corporation;
Limitation of the number of critical and fundamental activities;
Plan for the development of essential long-term competences;
The visualization of the central competence;
Relation of human capital with the maintenance of essential competences;
Existence of evaluation systems for decision on outsourcing;
How is the process of surveying the costs involved;
Existence of trained suppliers;
Relationship with suppliers;
Evaluation of possible suppliers;
Company’s view on outsourcing;
Who makes the decision regarding outsourcing;
How many and what activities are outsourced;
Outsource for what reason.

Source: authors.



The attributes of the dimensions were obtained from the decomposition of the macro dimensions of research and represent the studied variables. These variables were validated conceptually from the application of the questionnaire in company A, and after validation, the questionnaire was applied to the other companies.

### Case presentation

The criteria used to define the companies that participated in the study were: to belong to the metal-mechanic sector, to have an on-demand production environment and to manufacture customized products. Considering the classification of the companies according to the number of employees used by the Brazilian Micro and Small Business Support Service (SEBRAE, acronym in Portuguese), of the nine companies studied, two are considered micro-enterprises, four are small, two are medium-sized, and one is large. Table 5 characterizes the companies studied in this work.

The results of the analyses were confronted with the elements of the bibliographic review, identifying opportunities for the development of the theory on the research theme.

## 4. RESULTS: EVALUATION OF DECISION-MAKING CRITERIA REGARDING THIRD PARTY

### Company A

The company's vision regarding outsourcing is exposed as the best option to grow, because in times of idleness the fixed cost is lower. Within the activities evaluated, there is an activity called sales engineering, whose purpose is to survey and refine the information for the development of the company's products, serving as a filter between commercial and engineering activities. The company's plan is to outsource all manufacturing, human resources, maintenance, and information technology activities, with emphasis on engineering and assembly activities.

Regarding the map of its essential competencies, the company has an organization chart of its activities in continuous evaluation by the management, whose next step is the implementation of the objectives and the definition of what is expected of each activity, seeking clarification of the responsibilities of each employee for each activity.

With regard to cost reduction, when outsourcing is used, the company's main objective is to reduce wages and legal and social charges. Second, the company seeks to reduce expenses and the elimination of people and, with less

**Table 5.** Characterization of the studied companies.

Company	Lifetime	Segment	Local	Number of employees	Annual billing	Interviewee
A	16	filling and packaging machines	Bento Gonçalves	110	R\$ 25.000.000,00	administrative director
B	37	metal structures and pavilions	Carlos Barbosa	35	R\$ 5.000.000,00	director
C	29	storage tanks, mixers and silos in stainless steel	Garibaldi	140	R\$ 36.000.000,00	director
D	3	storage tanks, mixers and silos in stainless steel	Bento Gonçalves	11	R\$ 6.000.000,00	director
E	3	stainless steel equipment for micro-breweries	Bento Gonçalves	22	R\$ 3.500.000,00	director
F	18	packaging and bagging machines	Garibaldi	15	R\$ 3.000.000,00	director
G	22	stainless steel equipment for the storage, filtration and treatment of effluents	São Paulo	40	R\$ 10.000.000,00	manager
H	7	filling machines and cappers	Bento Gonçalves	24	R\$ 8.000.000,00	Industrial director
I	46	metal structures for sheds, multi-way buildings, bridges and viaducts	Nova Bassano	1650	R\$ 990.000.000,00	PCP coordinator

Source: authors.



emphasis, the reduction of the hierarchy. In assessing the outsourcer, the company considers, firstly, increasing the competitive advantage for profit, and then assesses the following points: technical skills, lower total cost of a process or service, proximity to the essential competency of the organization, security, confidentiality, logistics, productivity and reaction time, and effectiveness and better processes.

### Company B

The company's vision of outsourcing is considered a necessary evil, mainly due to the difficulty of finding qualified, committed, responsible companies with the desired quality for the execution of the works. There are no moves to reduce the number of activities carried out internally due to the recent acquisition of new equipment and the expansion of the company structure, seeking the expansion of products and processes.

The company seeks both the construction of organizational skills, creating a good working environment for employees, and the accumulation of technological assets through the acquisition of new machines for the industrial park. In this way, to outsource activities of essential competence, the company does not visualize any scenario as ideal and will always seek to carry out these activities internally, even if there is a great demand.

As to reducing costs when outsourcing, the company has, as its main objective, the reduction of expenses, salaries, and legal and social charges. As a secondary objective it aims at the elimination of people and the reduction of hierarchy.

When evaluating the outsourced, the company primarily considers the increase of the competitive advantage - the profit -, the confidentiality, the security, the involvement with the contracting company, and the technical skills. And, to a lesser extent, the company evaluates ways to monitor performance, the lowest total cost of a process or service, and the closeness of the core competency of the organization.

### Company C

The company's view regarding outsourcing is that it is only considered in an emergency. According to company policy, it is chosen to have most of its activities carried out internally. Engineering activities, in an outsourcing environment with guarantees of work quality, timelines and adequate costs, would be externalized only if the company presents difficulties in developing these activities; however, the company sees no alternative to outsource essential activities, thus retaining knowledge about the activity in its domain.

If there is no demand for activities with third parties, jobs are not intended for them and, in this context, there is no management of the idleness of third parties, nor dependence of the company towards them, or of them towards the company.

In the evaluation phase of the outsourced, the company considers the logistics, the proximity of the essential competence of the organization, the involvement with the contracting company and the lower total cost of a process or service.

### Company D

In the company's view, outsourcing is weighted as a trend, since it faces difficulties in finding skilled labor for the execution of its activities, especially those of manufacturing and engineering. The company has a map of the organization's core activities, which includes the way of thinking, how the company works, and the rules for running the organization. This, however, is not exposed in the organization, thus being under exclusive management.

Regarding cost reduction when outsourcing, the company has, as its main objective, the reduction of salaries, of legal and social charges, and of hierarchy.

When evaluating outsourced employees, the company first believes that they are effective and have the best processes, show productivity and reaction time, confidentiality and good technical skills. In the evaluation process, the company also considers, but with less importance, the means to monitor the performance, the lower total cost of a process/service, proximity to the organization's essential competence and involvement with the contracting company.

### Company E

For the company, outsourcing is considered as the only solution; thus, there is not a high investment in the physical structure and machinery, nor the need for many people. In order to outsource essential competency activities, the company does not envisage any scenario as ideal because the organization is unable to retain knowledge within the boundaries of the organization.

Cost analysis is the determining factor if you choose to develop activities internally or externally, and when outsourcing is chosen, the company uses a win-win cost policy. Second, the company seeks to reduce expenses and, with less emphasis, the reduction of salaries, legal and social burdens, and the hierarchy.

When evaluating the outsourced, the company considers, mainly, the technical skills, the proximity of the essential





competence of the organization, the security, the logistics, the productivity and the reaction time and the effectiveness/better processes.

### Company F

For company F, outsourcing is considered only in an emergency. This is because the company prefers to work stealthily and not show the activities that are performed, seeking control and maintenance of knowledge within the organization. The company is not reducing the number of activities carried out internally; on the contrary, it intends to increase the number of activities aimed at improving the control of actions and reducing external dependence.

As to cost reduction, when it opts for outsourcing the company has as its main objective the reduction of expenses, salaries, legal and social charges, and hierarchy; and, as a second objective, it seeks the elimination of people.

When evaluating outsourced professionals, the company considers: technical skills, involvement with the contracting company, proximity to the organization's essential competence, security, confidentiality, the means to monitor performance, logistics, productivity and reaction time, and better processes, increasing competitive advantage for profit, and, less importantly, evaluating the lowest total cost of a process/service.

### Company G

The company's view of outsourcing is exposed as a trend, because by buying ready-made items or outsourcing activities, the company does not need to have a physical structure or large numbers of employees. As for the outsourcing of activities of essential competence, the company visualizes as an alternative a scenario in which it can outsource only the activities of drawing detail and generation of bills of materials.

With regard to cost reduction, the company has as its main objective the elimination of people and, secondly, the reduction of expenses and the hierarchy. In addition, but with less importance, it also seeks to reduce wages and legal and social charges. When it opts to outsource, the company mainly seeks to establish partnerships that include active participation with the third party and, in the background, seek the client/supplier partnerships with a pre-established partnership rule.

When evaluating the outsourced, the company initially considers the increase of the competitive advantage, aiming at the profit; and then assesses productivity and reaction

time, confidentiality, security and engagement with the contracting company. In addition, with less emphasis, it considers the following points: efficiency and better processes, logistics, means to monitor performance, proximity to the organization's essential competency and lower total cost of a process/service.

### Company H

According to the company's vision outsourcing is considered as a trend because, due to outsourcing of activities, the organization does not need to have a large number of employees and can maintain a low fixed cost. The company would consider outsourcing essential competency activities if there was demand for the development of a product whose technology involved is not known by the company, although it acknowledges that this option goes against the maintenance of knowledge within the limits of the organization.

Cost analysis is what determines decision-making as to outsourcing activities or not, and when outsourcing is used, the company uses a win-win cost policy. The main objective of this company regarding outsourcing is the elimination of people. Second, the company seeks to reduce wages and legal and social charges, and, less representatively, reduce expenses and the hierarchy.

### Company I

The company's outlook on outsourcing is weighted as the best option to grow, precisely because of seasonal sales. The cost analysis is the basis of the evaluation study for the decision making regarding the execution of the activities internally or externally; and when outsourcing is used, the company uses a cost-based policy based on win-win.

With regard to costs, it opts for outsourcing with the main objective of eliminating people. Secondly, there is a reduction of wages, legal and social burdens, and hierarchy; and, finally, the company seeks to reduce expenses.

Regarding the partnership models used, the company seeks to establish client/supplier partnerships (standard) and customer/supplier with pre-established partnership rule. As a second option, it seeks partnerships with ational participation with the third party.

Regarding the evaluation, the company considers, with less importance, the involvement with the contracting company, the proximity of the essential competence of the orga-



nization and the logistics. Among the most important items are the technical skills, productivity and reaction time, and methods of performance monitoring.

**Comparative discussion of results**

Based on the cases presented, this section presents an interpretation of the reality and of the influences involved in the decision-making regarding outsourcing, based on the analysis of the following points: (a) reason for the search for outsourced services; (b) essential activities and idleness management with the third party; (c) risks; (d) cost reduction objectives; (e) third-party evaluations.

From the total of the companies studied, six (A, D, E, G, H and I) consider outsourcing as a positive factor for the organization’s growth, while three companies consider it as an alternative to solving immediate problems.

Among the first six companies, two (A and I) consider outsourcing as the best growth strategy, three (D, G and H) view it as a trend and one (E) believes it to be the only solution. Also, in relation to these six organizations, when outsourcing, two (D and G) aim to transform fixed cost into variable, two (A and H) focus on their core competencies, one (E) seeks to reduce costs and one (I) seeks to create value by improving the level of services.

As verified in the interviews, small and medium-sized companies with a positive outlook on outsourcing (A, D, E, G and H) have as objectives, when seeking outsourcing, to transform fixed cost into variable and to focus on the organization’s essential competence. This trend was identified in this study because, with a view to a longer-term partnership, the third-party companies sought were larger and more structured organizations.

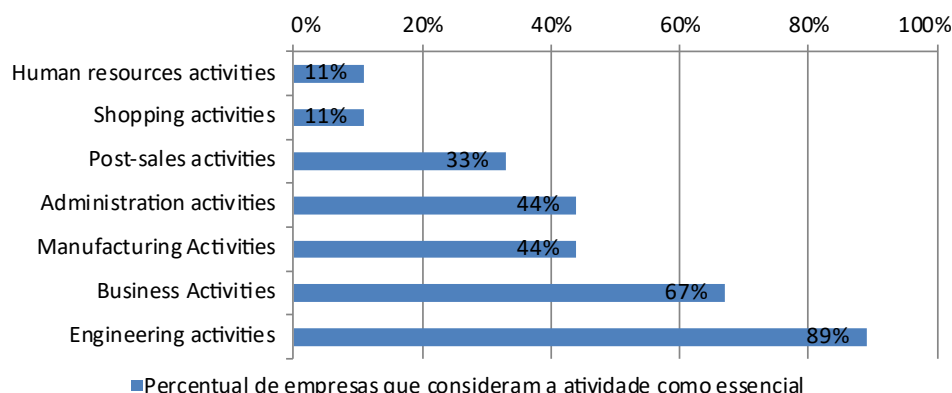
The companies with a more immediate view (B, C and F) aim, with outsourced services, to solve an immediate problem (C and F) and to transform fixed cost into variable (B).

In the case of companies with a more positive outlook for outsourcing, the growth in market demand resulted in increased activities both internally and externally, although the forecasts suggested a decrease in the number of activities carried out within the organization. For companies with an immediate view, the growth of market demand has been absorbed with the expansion of resources and activities done internally. In this case, it was observed the intention of these companies to increase the accomplishment of activities done internally.

The two main sectors considered essential for business are commercial and engineering activities (Figure 2).

According to the interviews, three companies with a positive vision do not visualize any scenario for the outsourcing of essential activities, while the other three companies visualize outsourcing part of the activity. An alternative, in this case, would be to outsource engineering activities, especially those included in the process of detailing drawings, as pointed out by A and E representatives, or to hire companies that assist in the development of new products, as suggested by company G. Organizations with a more immediate vision do not visualize scenarios of outsourcing their essential competency activities.

Most companies do not have fixed contracts with their third parties, but there is a reserve of a number of hours per month, although without guarantees of their actual use. Regarding the management of idleness in medium-sized companies that have a positive outlook on outsourcing (A, D, E, G and H), it was identified the use of a monthly reserve of hours of some third parties.



**Figure 2.** Essential activities of the companies participating in the research

Source: authors.



The delivery time of the products to the clients, of the companies interviewed, is generally more than 30 days. Thus, the reservation of hours is made based on the forecasts of the confirmed order book. Considering the outsourcing perspective and the total number of companies interviewed, less than half reported having booked their hours with their outsourced partners.

One option for outsourcing is the creation of other third-party companies, in which the contracting organizations participate as shareholders. This aspect was identified from the analysis of the partnership models adopted by companies when they choose to outsource. To that end, respondents were asked to rate, on a growing scale of 1 to 5, which of the models listed were more adopted by companies. The mean score values of each model can be checked on Table 6, which indicates that the main model used by the companies that choose to outsource is the client/supplier with pre-established partnership rule.

**Table 6.** Average score of outsourcing models used

Models	Total average	Average (positive view)	Average (immediate vision)
Customer/Supplier (default)	3,7	3,5	4,0
Client/Vendor with pre-established partnership rule	4,1	4,2	4,0
Partnership with assignment of company resources	2,4	2,3	2,7
Acting with the third party	2,8	3,2	2,0

Source: authors.

As for the risk evaluation criteria considered for outsourcing decision making, the company representatives cited the quality of the execution of the activities, the fulfillment of the deadlines and the low availability of qualified third parties. Another criterion evaluated by the organizations that work with production to order and with customized products is the search for medium or long term partnerships.

The cost policy used by six companies (B, E, F, G, H and I) is win-win, while the other three (A, C, and D) use a cost policy based on cost and shared risk. Still on costs, the six companies mentioned above, when outsourcing their activities, aim, above all, to reduce costs, reduce staff numbers and reduce wages and legal and social charges. The companies in the second group, in turn, are mainly aimed at reducing costs, reducing wages, legal

and social charges and reducing expenses. For companies with a vision of outsourcing as an immediate solution, outsourcing is used only in case of emergency and the objectives are to transform fixed cost into variable and to focus on the essential competence of the organization. Thus, from a cost policy perspective, a significant difference was not identified between the group of companies with a positive outlook and an immediate view on the outsourcing of activities, with the visions of both groups being very similar.

## 5. FINAL DISCUSSIONS

As presented in the bibliographic basis, seven decision points were identified regarding outsourcing: cost efficiency, production reorganization, top management support, supply chain analysis, supply environment, complete and detailed evaluation of technical aspects, and activities to be outsourced.

As regards cost efficiency, companies seek to reduce costs by reducing staffing, wages and legal and social costs. With regard to the reorganization of production, companies are especially concerned with productivity and reaction time and with the development of the technical skills of their third parties. It should be noted that in all the companies analyzed, the decision on outsourcing is the direction, as pointed out by the theoretical reference.

With regard to the analysis of the supply chain, it was verified that the companies seek to establish medium- and long-term partnerships, and adopt the client/supplier model with a pre-established partnership rule.

Regarding the supply environment, it was verified that the companies are concerned with the quality of the execution of the activities and with the possibility of becoming dependent on their third parties. Such concern has been reported by the companies interviewed and who make use of time reservations with their suppliers. Regarding the activities to be outsourced, half of the companies with a positive vision envisage outsourcing essential competency activities, while no company with immediate vision mentioned this possibility.

For companies with a positive outlook, the criteria related to the objectives were: to transform fixed cost into variable and to focus on the essential competence of the organization; for companies with immediate vision the criterion was the resolution of an immediate problem. Still on the core competencies, another criterion identified was the importance given to commercial and engineering activities within this segment of companies,



whose market demands have great power. Finally, the main criteria considered when evaluating the outsourced are: technical skills, productivity, reaction time, safety, confidentiality and increase of the advantage.

For the above, it is considered that the sampling allowed validation of the data, considering that companies of different sizes and with different market segments were interviewed. However, despite these differences, companies with a positive outlook and companies with a more pessimistic view on outsourcing have some common perceptions regarding their outsourced activities, for example, cost minimization. The factors considered in the cross-referencing of the information also allowed the identification of similarities and differences between companies with a positive outlook and between companies with a more immediate view, regarding the decision-making process related to outsourcing.

The stage of confrontation between the elements of the bibliographic review and the comparative analysis of results confirmed that, in practice, companies with on-demand production adopt the same criteria as the serial production companies, and that, therefore, the dimensions chosen in this study were appropriate for this approach. This finding answers the questions that guided the development of this research.

Considering the limitations of this study, it is suggested the development of future research that consider: (i) a data collection with a larger number of companies; (ii) the study of other outsourced value chains, in search of evidence that may complement or question the results achieved with this research; (iii) the analysis of outsourcing from the outsourced point of view; (iv) the analysis of outsourcing criteria that covers aspects related to the internal culture of the organization; (v) the analysis of the functioning of the models of partnerships with ational participation with the third and; (vi) an in-depth study of the management of outsourcing contracts in companies with an on-demand production environment, since this work was based on the decision criteria.

It is concluded that, based on the analysis of the results obtained, the core question of the research was reached, that is, it was possible to evaluate the main criteria involved in the decision-making process regarding the outsourcing of essential activities in companies with production environments of the type to order.

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**Received:** Nov. 10, 2018

**Approved:** Jan. 10, 2019

**DOI:** 10.20985/1980-5160.2019.v14n1.1483

**How to cite:** Beal, C.; Costa, C. A.; Reis, Z. C. et al. (2019), "Outsourcing in companies with custom production: decision criteria", *Sistemas & Gestão*, Vol. 14, N. 1, pp. 86-98, available from: <http://www.revistasg.uff.br/index.php/sg/article/view/1483> (access day abbreviation month year).