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## Journal of Purchasing &amp; Supply Management

journal homepage: [www.elsevier.com/locate/pursup](http://www.elsevier.com/locate/pursup)

# The impact of performance measurement on purchasing group dynamics: The Canadian experience

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## ARTICLE INFO

## Article history:

Received 27 August 2014

Received in revised form

21 February 2016

Accepted 7 April 2016

## Keywords:

Purchasing groups

Performance measurement

Inter-organizational dynamics

Healthcare sector

Case study

## ABSTRACT

Purchasing groups were first created in the healthcare sector, which has faced unprecedented challenges in terms of cost control for over two decades. Purchasing groups are indeed supposed to generate additional savings and more efficient purchasing processes. However, although various aspects of purchasing groups have been studied since the early 2000s, both their performance measurement and the influence that this measurement has on inter-organizational dynamics have been neglected. In purchasing groups, the dynamics between the group itself and its members often results in tensions between both parties. Performance measurement within purchasing groups could alleviate those tensions, since “objective” data could then be used to improve communication.

Based on a case study, this research sheds light on performance measurement in a purchasing group, on the dynamics between the group and its members, and on the interaction between performance measurement and inter-organizational dynamics. Results indicate that measuring performance impacts the dynamics between both parties, but that the relationship is also the other way around, and that the inter-organizational dynamics is quite complex. In addition, this paper proposes a framework summarizing the research findings.

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## 1. Introduction

Since around the early 1990s, numerous reports have indicated that in industrialized countries, healthcare managers must control cost increases much better, without sacrificing quality and service (Naylor, 1999; Ford and Scanlon, 2007; Roehrig, 2011; Hadad et al., 2013). According to many authors, supply chain management presents interesting opportunities to achieve significant savings (CSC Consulting, 1996; Ebel et al., 2013) without impacting service delivery, and, actually, even by improving it (Agwunobi and London, 2009; Narayana et al., 2014). When considering only the last provider in the supply chain –the healthcare center (HC)–, purchasing and inventory represent between 30% and 45% of expenses, while purchasing can correspond to half of that amount (Landry and Beaulieu, 2013).

In many industrialized countries, healthcare supply chains include purchasing groups, which act as intermediaries between HCs and suppliers (McKone-Sweet et al., 2005). Created over 100 years ago in healthcare and now known under different names, a purchasing group is a service provider to other organizations and is

mostly used for bids and contract negotiation (Nollet and Beaulieu, 2005). As suggested by Adobor and McMullen (2014), a purchasing group can be viewed as a third party facilitating the relationship between buyers and suppliers. Purchasing groups often promise, implicitly or explicitly, a lower price through the consolidation of purchases from many HCs, while reducing administrative costs normally resulting from the duplication of activities such as supplier search and supplier selection in individual HCs. However, Hu and Schwarz (2011, p. 1) mention that “... GPOs play a very significant –and very controversial– role in the supply chains for healthcare products”. Their idea is supported by the fact that over the last 30 years there has been criticism voiced by members of many purchasing groups (Housley, 1982; Johnson, 1999; Nollet and Beaulieu, 2003; GAO, 2010), or, inversely, by the groups who complain that their members do not abide the decisions made on their behalf by the group (Schneller, 2009).

At the core of the tensions between a purchasing group and its members lies purchasing group’s performance assessment, including for the computation of total savings. The concept of savings can be quite complex in the supply field (Nollet et al., 2008). However, a purchasing group’s performance often depends upon the members’ commitment to the group, as well as on the relationships between the group and its members.

The complaints expressed by both parties are partly due to the

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interaction between the provider (in this case, the purchasing group) and the customers/members (the HCs the group purchases for); this interaction is actually an “inter-organizational dynamics”. It appears that one key component of that dynamics is that purchasing groups are often faced with the challenge to demonstrate that the results they provide are better than if the HCs would purchase by themselves (GAO, 2010); Housley (1982) mentioned this same issue more than 30 years ago. While being a facilitator, a third party can also pursue its own interests, and this reality clearly creates additional tensions (Adobor and McMullen, 2014). However, the use of performance measures could alleviate this ambiguity by providing objective information (Kumar et al., 2005). Otherwise, there are likely to be conflicts when incentives are not compatible with system-wide objectives (Sabin and Robinson, 2002).

Surprisingly, little research has been performed on performance measurement in the context of purchasing groups (Schotanus and Telgen, 2007), and no article reports the impact of performance measurement on the relationship between a group and its members (“inter-organizational dynamics”). Our research actually deals with this important theme; the main research question is: “How does purchasing group performance measurement influence the dynamics between the group and its members?” To answer this question, we discussed the following themes with the interviewees: performance measurement (specific measures, their application, and existing barriers) in healthcare centers (members of the purchasing group) and purchasing groups; inter-organizational dynamics between both parties; interactions between performance measures and inter-organizational dynamics.

Although our study specifically targets purchasing groups, there are studies dealing with performance measures in inter-organizational contexts such as customer-supplier partnerships (for instance, Cousins et al., 2008), collaborative relationships between organizations (for instance, Busi and Bititci, 2006), or more globally in supply chain (for instance, Akyuz and Erkan, 2010). In the specific field of purchasing management, Tadepalli (2011) has shown that one of the major challenges in performance measurement was the inter-organizational dimension; however, the author did not discuss the influence of measurement on inter-organizational dynamics. Our research thus intends to fill that gap as well. Considering the complexity of those two dimensions and their exploratory nature in the context of purchasing groups, we have used an in-depth case study (Yin, 2009). The case selected has allowed us to obtain information both from the members and the purchasing group as to their perception of the other party's contribution, as well as about the performance measures they use. This methodology is the best data collection strategy to identify the interests of both sides of a dyad, as illustrated in the articles by Finne et al. (2015) and by Schreiner (2015), and to position the answers within a specific context, which actually helps to shed more light on the interactions between both groups.

Since purchasing groups originated in the healthcare sector, which is under great pressure to generate savings, the case selected is one of the four public healthcare purchasing groups located in the province of Quebec (Canada). The methodology for the case study includes interviews not only with the purchasing group's contract managers, but with its members (CFOs and CPOs of healthcare organizations) as well. In addition, we have interviewed the CEOs of the other three Quebec healthcare purchasing groups and some members of a major purchasing group in another Canadian province.

There are four sections in this article. First, we discuss the literature related to the inter-organizational dynamics between a group and its members, as well as to the potential tensions and conflicts that might result; in addition, we address performance measurement within purchasing groups, and discuss the role that

such a system could play in improving the dialogue between both parties. The second section outlines the methodology for the case study, mentioning the number and variety of interviewees and how their answers made it possible to understand the situation with its tones and undertones. The third section presents the specific context of the case selected, the analysis of the inter-organizational dynamics within the group, the performance measures used, the interaction between the dynamics and the measures, and the major issues in performance measurement in the other Quebec purchasing groups. Finally, the fourth section discusses the results of this research, summarizes the findings, more complex than expected, in a framework that can be used for research and management purposes, and mentions some avenues for future research.

## 2. Literature review

Purchasing groups are increasingly popular, as well for practitioners (Sandberg and Mena, 2015) as for researchers (Schotanus and Telgen, 2007). In addition, since both the type of structure and the objectives can vary from one purchasing group to another, there are various names used for purchasing groups, including: “cooperative purchasing”, “collaborative purchasing”, “joint purchasing”, “purchasing consortium”, “joint purchasing”, and “shared purchasing” (Johnson, 1999; Bakker et al., 2006; Schotanus and Telgen, 2007). Whatever the name, the members' intent is to benefit from the group's purchasing power, and also from its lower transaction costs, since supplier search and negotiations are performed by only one organization rather than by many. It also allows members to benefit from the group's expertise and to allocate their resources to other priorities (Nollet and Beaulieu, 2005; Schotanus and Telgen, 2007). Benefits include the role of intermediary played by a purchasing group, albeit purchasing groups can also pursue their own interests (Adobor and McMullen, 2014). The triad used in healthcare –with purchasing groups in the middle between HCs and suppliers– is only one of the structures resulting in inter-organizational dynamics (Iacobucci and Hopkins, 1992; Miemczyk et al., 2012).

As is the case for various collaboration initiatives (Seppanen et al., 2007), Schotanus et al. (2010) mention that inter-organizational trust is one of the most frequently-discussed success criteria within purchasing groups; in fact, it is expected that members will present a cohesive front for collective decisions. A member should not pursue its own interests at the expense of the group's, for instance by using the price negotiated by the group as the basis for discussing better deals with suppliers (Schneller, 2009). Such opportunistic behaviors damage a group's credibility and, ultimately, it might become more difficult for a group to negotiate with suppliers, since sales forecasts will then be perceived as too optimistic (Nollet and Beaulieu, 2005). However, the analysis of a purchasing group made by Sandberg and Mena (2015) in the retail sector shows that a member might nevertheless use a supplier other than the one retained by the purchasing group, but for reasons such as quality and product branding.

Inter-organizational dynamics is not unidirectional: the member also has obligations toward the group (Adobor and McMullen, 2014), for instance by providing requirements and specifications (Schneller, 2009). Therefore, inter-organizational dynamics is influenced by the level of implication that members have in their purchasing group. Based on the literature (for instance, Schotanus and Telgen, 2007; Schneller, 2009) and on our own observations of the healthcare sector, there are three types of purchasing group structures. The first one, which characterizes American healthcare, can be labelled “supplier-client”. In that context, the purchasing group has already negotiated contracts with suppliers; each HC

decides which purchasing group it will deal with, depending on how a purchasing group's portfolio suits its needs, but also on the anticipated savings. The second approach can be labelled "co-operative", since what a purchasing group does depends on its members' contributions, for instance precise need definition and active supplier selection. However, the negotiation and the contract are part of the purchasing group's responsibilities. This approach is representative of the Quebec healthcare sector (Nollet and Beaulieu, 2005). The French healthcare sector shows that a third structure, which could be labelled "confederal", does exist; members discuss to determine which purchases will be made by the purchasing group, and which member will proceed with the negotiation, on behalf of all members. To a certain extent, when this structure is used, there is some competition among members (Aleksandrowicz and Duhil de Benazé, 2010).

Nollet and Beaulieu (2005) consider that when members delegate some tasks to a purchasing group, the process is similar to outsourcing part or all of the negotiations that would otherwise be performed by the members. Therefore, as mentioned by Sharda and Chatterjee (2011, p. 155), in such a context, relationships are critical: "... research has shown that the success of an outsourced project is influenced by the inter-organizational relationships"; consequently it pays dividends to make efforts to develop good relationships. However, this is easier said than done, since conflicts emerge more often in a context where organizations share a mutual dependency (Sharda and Chatterjee, 2011), as is the case for purchasing groups and their members. According to Cahill et al., (2010, p. 254) "... a conflict is a situation in which one organization perceives that its interests are being opposed or negatively affected by the other party"; the authors add that tensions or conflicts are often a sign of a reduced confidence level and that they are mostly *perceptions*.

The importance of *perception* can be partially explained by the fact that, in services, the outputs are less tangible, resulting in a more difficult assessment of quality and performance. As mentioned before, Housley (1982, p. 75) had insisted on this ambiguity, indicating that "... one of the problems with group purchasing is a lack of evidence that it will work better than any form of purchasing". The situation had not changed much 20 years later, a study by GAO (2002) confirming that some HCs could get better prices than those negotiated by their purchasing group. Based on a literature review, Burns (2014) does not contradict this situation, although mentioning that on a national scale (in the United States), purchasing groups generally get better prices than individual HCs.

Kang et al. (2012) argue that within an outsourcing context relationships must be managed through control mechanisms such as performance measures. In fact, interactions between organizations should lead to performance measures taking into account inter-organizational dynamics (Busi and Bititci, 2006; Cousins et al., 2008; Akyuz and Erkan, 2010). It appears that through its communication role (Franco-Santos et al., 2007; Akyuz and Erkan, 2010; Choong, 2014), the use of performance measures could help alleviate the ambiguity associated to a group's performance and, more specifically, to the savings generated, by providing objective information (Kumar et al., 2005; Cousins et al., 2008). It is critical to use the right performance indicators in order to get the expected behaviors (Ridgway, 1956); otherwise, inappropriate incentives can lead to or maintain counter-productive behaviors (Sabin and Robinson, 2002).

However, in purchasing management, it can be difficult to define clearly what "savings" are made of (Nollet et al., 2008). Not surprisingly, Tadepalli (2011) indicates that performance measurement is one of the most difficult tasks associated to purchasing; one of the reasons for this situation is that tensions exist in doing so. In addition, tensions often exist in most purchasing

processes (Hult and Nichols, 1996). These tensions are exacerbated in the healthcare context, since healthcare professionals try to influence significantly the purchasing process so that their own interests are put forward (Montgomery and Schneller, 2007). Consequently, the development of inter-organizational performance measures then becomes even more difficult (Busi and Bititci, 2006).

Despite this situation, it is nevertheless possible to identify at least 20 performance measures in supply management (Byrne and Markham, 1991; Shepherd and Gunter, 2006), although price often remains the only measure used for supplier performance (Cousins et al., 2008). Developments in information technology have made performance measures more readily available (Akyuz and Erkan, 2010), but it is only more recently that they have been used with a holistic perspective (Nollet et al., 2008). Caniato et al. (2014, p. 617) pointed out that there are now more publications on how to develop, implement and use a performance measurement system; however, "... very few studies explicitly consider the purchasing perspective, which is likely to require specific considerations". In addition, performance measures have been mostly developed by focusing on the *intra*-organizational perspective (Busi and Bititci, 2006).

In an inter-organizational context, performance measures should be selected carefully, since they impact the dynamics of the relationship as well as the performance of the organizations involved; at the same time, it might be difficult to evaluate performance in such a context, precisely because of the inter-organizational dynamics and of the often unpredictable individual behavior (Giannakis, 2007). The literature review by Arshinder et al. (2008) emphasizes the dynamic relationship between supply chain coordination and performance measurement, calling for considering a number of performance measures. Performance measurement systems can support inter-organizational coordination and, conversely, better cooperation may yield better results for some performance measures. In the same vein, the review by Caglio and Ditillo (2008) which focused on management accounting research, points out the complex role of performance measures in inter-firm relationships, their symbolic role, their impact on inter-firm cooperation and that "there can be mutually reinforcing links between the sharing of accounting information and the establishment of trusting relationships" (p. 894). In addition, the relationship between a purchasing group and its members is not static, since both parties' expectations evolve over time (Holweg and Pil, 2012).

Considering the literature review, it appears relevant and important to answer the following research question: "*How does purchasing group performance measurement influence the dynamics between the group and its members?*" Although it might appear to be a simple question, it actually deals with complex issues. The existing tensions within a group do not imply that the group is not functional, but rather that its potential is likely under-utilized. Furthermore, it is not easy to define appropriate performance measures in purchasing, and, in addition, the inter-organizational context (and the ensuing dynamics) make the task even more challenging. This research question makes it possible to deal with some of the gaps identified by Schotanus and Telgen (2007) as well as the call by Caglio and Ditillo (2008) for more studies with an emphasis on processes and dynamics.

### 3. Methodology

A purchasing group is part of a triadic relationship among buyers (in the purchasing group), members of the purchasing group (healthcare centers) and suppliers. This study focuses on the dyadic relationship between the purchasing group and its

members, since this is where potential conflicts are more likely to take place. In addition, inter-organizational trust is one of the most frequently-discussed success factors for group purchasing (Nollet and Beaulieu, 2005; Schotanus et al., 2010). Also, Doucette (1997) emphasized that members' confidence in the purchasing group was clearly a success factor for the group's activities.

Since a purchasing group is a structure resulting from the partial outsourcing of healthcare centers purchases, it is normal to assess the purchasing group's performance and to examine the dynamics between the group and its members, both pursuing their own interests as well. Considering: 1) the exploratory nature of the research question; 2) the complexity of inter-organizational dynamics, which relies mostly on perceptions; and 3) that the actual context of purchasing groups provides valuable information, we have adopted the case method (Yin, 2009), since it seems the best methodology under those circumstances.

As mentioned by DeHoratius and Rabinovich (2011, p. 371): "Operations and supply chain management researchers have been criticized for moving away from field based research [...]; there have been numerous calls for researchers to return to the field in order to observe the operating phenomena central to our research". In line with this call, qualitative research, which can be mixed with quantitative research, is an appropriate strategy; Sol-tani et al. (2014) point out that qualitative research allows for a better understanding of contemporary phenomena within their own setting. Although purchasing groups and performance measurement in purchasing are not emerging themes per se, there are still some aspects of these topics which need to be investigated, as well for the first theme (Schotanus and Telgen, 2007), as for the second one (Schoenherr et al., 2012; Caniato et al., 2014); in addition, both topics have seldom been studied together empirically.

To answer our research question, we have selected the case study as the main method used, since, as mentioned by Dubois and Araujo (2007), the flexibility that this research methodology brings can be very useful in situations with research objectives such as ours. This approach is also well suited for complex themes (Closs et al., 2008). Since inter-organizational dynamics involving a purchasing group and its members is rooted in individual perceptions and opinions, the dynamics changes over time and depends on the parties involved (Tadepalli, 2011). According to Dubois and Araujo (2007) and to Barratt et al. (2011), by combining different sources of information – particularly through multiple interviews– the case method captures the richness of the various points of view, while documenting the context where the situation takes place.

According to Voss et al. (2002), case study is a sound research approach for exploratory purposes. Fig. 1 shows that our methodology, which is based on a case study, comprises three steps:

- 1) In order to position performance management in healthcare, our research integrates the results of an empirical research conducted in Quebec HCs;
- 2) The case itself is based on interviews with contract managers in the purchasing group, as well as members (HCs, through their CFOs and CPOs) of that group;
- 3) The case is complemented by interviews with the CEOs of the purchasing groups not selected for the in-depth study, as well as with CPOs and CFOs of another purchasing group.

Additional information about these three steps is provided hereafter.

### 3.1. Case selection

Our research is based on a single case, both for methodological and practical reasons. The population was made of the four (4) healthcare purchasing groups in the province of Quebec (Canada); recently, two of those groups merged (see Table 1 for information about the purchasing groups). There are 178 healthcare centers in Quebec for a population of 9 million people (about 23% of Canada's population). The purchasing group studied operates based on a cooperative approach.

In order to study the dynamics between the purchasing group selected and its members, we had to get many points of view; so, we interviewed many individuals. Among the four purchasing groups, only one CEO was receptive to the research and would provide access to his staff. Considering the privileged access to the purchasing group, and in particular to the contract managers, our case study can be qualified as a *revelatory* case (Yin, 2009, p. 48). Interviewing contract managers within the purchasing group proved to be particularly difficult: after obtaining the CEO's permission, we had to make sure that the ones selected would make time for us and discuss openly, since they are extremely busy and deal with highly confidential information. Ultimately, we could interview all of those we had selected, making it possible to get valuable in-depth information, which is the expected advantage (and added value) of a single case study approach (Voss et al. 2002; Barratt et al., 2011). Considering the limits of a single case study and to determine the representativeness of our results, we

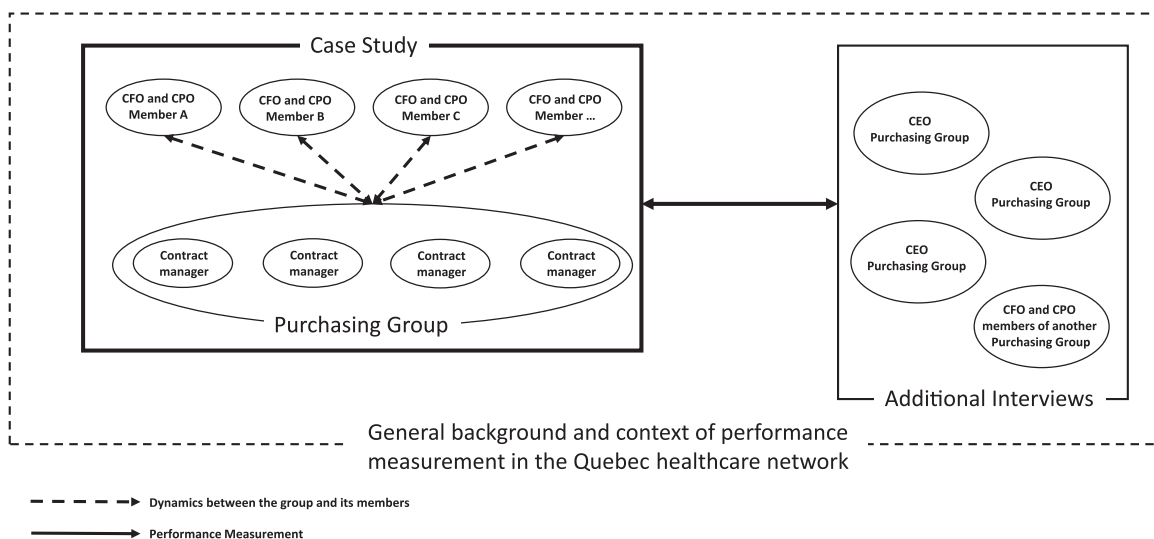


Fig. 1. Research design.

**Table 1**  
Main characteristics of healthcare purchasing groups in Quebec.

| Healthcare purchasing groups in Quebec                     | Group A | Group B | Group C | Group D |
|--|---------|---------|---------|---------|
| Number of members <sup>a</sup>                             | 69      | 196     | 61      | 38      |
| Number of mandates   | 154     | 409     | 155     | 62      |
| Number of employees  | 21      | 58      | 21      | 12      |
| Percentage of total purchases made by the purchasing group | 42%     | 46%     | 46%     | 46%     |

<sup>a</sup> Although, as mentioned in the paragraph above Table 1, there are 178 HCs in Quebec, the number of members mentioned here far exceeds that number. The four (4) purchasing groups get attractive prices and have competent purchasing staff; therefore, some small public entities (municipalities, school boards, private long term HCs, etc.) are accepted as “members”, but they are in fact tagging along on the contracts decided by the purchasing group. They have no decision power whatsoever. This is why the present study really focuses on purchasing groups and HCs.

complemented the case by interviewing the CEO of each of the other three purchasing groups.

### 3.2. Data collection

We interviewed four of the nine contract managers. In order to get variety in the comments, the interviewees were selected based on: 1) the technological complexity of the items purchased (for instance, medical equipment differs from dietary supplements!); 2) the basis of whether it was a new purchase or a “re-buy”; 3) the high frequency of their contacts with healthcare centers personnel. As a result of 3) in particular, the contract managers' opinion about inter-organizational dynamics could be more precise and with interesting nuances. Interviewing four contract managers was sufficient to provide a clear picture of the situation and we felt that data saturation was reached.

Interviews were also conducted with the Chief Financial Officer (CFO) and/or the Chief Purchasing Officer (CPO) of over 35 HCs (members) of that purchasing group, for a total of 60 individuals. This allowed us to compare viewpoints within HCs as well as among interviewees from various HCs. In total, we interviewed about 60 individuals. The reason for interviewing CPOs is that they interact often with the purchasing group and can evaluate a group's performance. As for CFOs, they usually rank just above CPOs and they often focus on the financial benefits that a purchasing group can bring.

The interviews with the contract managers lasted between 60 and 75 minutes and focused on the work performed by the purchasing group (see Table 2). Those with CFOs and CPOs lasted between 60 and 90 minutes and covered a variety of issues, including the relationship between their organization and the purchasing group, and how the purchasing group could provide a better service by taking charge of more items (or services) and by being more efficient. In other words, both inter-organizational relationships and performance measures were covered, although separately, since they involved a different type of analysis: inter-

organizational dynamics deals with interests and perceptions, while performance measurement is more objective (which measures are used, and how often they are used). Clearly, many interviewees also provided comments on the influence of one dimension on the other one.

We also interviewed the CEO of each of the other three healthcare purchasing groups in Quebec. These interviews, which lasted about 30 min and were along the lines mentioned in Table 2, make it possible to compare the information from the case study with the reality in the other purchasing groups.

In order to provide another basis of comparison, additional interviews were conducted with a dozen of CFOs and CPOs from HCs which were members of a purchasing group other than the one selected for this research. We used the same interview guide as for the CFOs and CPOs in the purchasing group selected. This additional research step made it possible to determine if there were significant differences between HCs who were part of the selected group and those belonging to another purchasing group.

Finally, to describe the context surrounding performance management within healthcare, we provide the results of a study made by Beaulieu and Roy (2015) targeting the 178 HCs in Quebec. That research, which got a 70% response rate, covered multiple aspects of purchasing, including performance measurement. For that dimension, about 20 measures were suggested to the respondents, who had to identify which ones they used and at which frequency (never, once a year, once per quarter, once per month). The list of measures was developed based on OntarioBuys (2006) and Beaulieu et al. (2006).

### 3.3. Data analysis

Data was analyzed for two dimensions: first, the group's and the members' perceptions of the dynamics; and second, the performance measures used by the purchasing group. Subsequently, as planned at the research design stage, we discussed how those two dimensions were related.

In order to understand better the inter-organizational dynamics, we asked the CFOs and the CPOs of over 35 HCs (members) to evaluate the contribution made by their purchasing group, while four (4) contract managers did the same for HCs. The answers were coded according to a well-known strategy, described again recently by Miles et al. (2013), but which was used in other studies about purchasing groups (for instance, see Nollet and Beaulieu 2003, 2005). As a first step, we coded based on a deductive strategy, since the questions dealt with themes which, based on the literature, could lead to different types of answers (and, therefore, different codes). Then, once the coding was started, we used the conventional approach for coding qualitative data, by adding new codes for unexpected answers.

The second dimension was performance measures. To determine if the type of mandate impacted this dimension, we first

**Table 2**  
Main themes in the interview guides for the different types of interviewees.

|                      | CPOs and CFOs (from HCs in both purchasing groups)  | Contract managers  | CEOs of the other three purchasing groups   |
|----------------------|---|--|---|
| Main topics          | Under which conditions would your HC collaborate more with the purchasing group?<br>Which improvements would you like to make to the supply performance evaluation system?              | How could HCs better collaborate with the purchasing group?<br>How is your performance evaluated for major purchases under your responsibility?  | How is it possible to stay in touch with HCs' needs?<br>How is a contract manager's performance evaluated for major purchases?  |
| Complementary topics | <ul style="list-style-type: none"> <li>Organizational structure</li> <li>Definition of specifications</li> <li>Personnel training and retention</li> <li>Information systems</li> </ul> | <ul style="list-style-type: none"> <li>Tradeoffs for conflicting objectives among HCs</li> <li>Definition of a purchasing strategy</li> <li>Purchasing steps</li> <li>Allocation of tasks during a typical week</li> </ul> | <ul style="list-style-type: none"> <li>Organization of work</li> <li>Personnel training</li> <li>Discussions with the supply market (actual and potential suppliers)</li> </ul> |

compared the contract managers' answers. In order to be more accurate in the answers provided by the members, we separated the CFO's and the CPO's answers in two groups; we did the same for the answers from large HCs and smaller-size HCs. A similar approach was used successfully by [Nollet and Beaulieu \(2003\)](#); although we don't duplicate or report more precisely the work these authors did then, it is clear that such an approach can provide nuances about inter-organizational dynamics.

We compared the practices used in the purchasing group studied with the ones in the other three groups, and then with those of the above-mentioned study of 124 healthcare centers. Quantitative data were used to get more information about performance measures used in the Quebec healthcare system.

As mentioned previously, it is inter-organizational dynamics which presents more challenges in terms of analysis, since it involves interviewees' interests and perceptions. The analysis of this dimension revealed to what extent the interviewees agreed or not about the situation. In order to understand how this dimension is influenced by performance measurement, we have compared the data for the case studied with what the CEOs of the other three purchasing groups told us about performance measures used in their organization. Also, complementary interviews with CFOs and CPOs were performed in order to get their perception about inter-organizational dynamics in their group. In addition, we compared the performance system results with those from the other three Quebec purchasing groups, since we had comparable information.

#### 4. Case study results

There are four sub-sections in this section: after describing the healthcare context in Canada and in Quebec (sub-Section 4.1), we present the results for inter-organizational dynamics and for performance measurement for the group studied (sub-Section 4.2), and for the other three purchasing groups (sub-Section 4.3); finally, sub-section 4.4 describes the differences between the group studied and the others. We are quoting some of the respondents when their words are representative of what many other interviewees mentioned and/or when they describe clearly and briefly the situation.

##### 4.1. The context: healthcare purchasing groups in Canada and Quebec

In Canada, healthcare is mostly public; therefore, it is the provincial governments that manage HCs. In Quebec, healthcare purchasing is more often performed by regional purchasing groups than in the other Canadian provinces. This has been the case for over 40 years, and the trend will likely continue, since the Ministry of Health and Social Services recently made it clear that significant savings were expected through additional purchases by the purchasing groups. Purchases in the Quebec healthcare sector are four billion Canadian dollars, of which 44% (\$1.8 billion) is made through purchasing groups, who can negotiate high-volume items such as medical supplies, drugs, food, stationery, and maintenance products. The percentage of total purchases made through purchasing groups was stagnating at around 45% from 2000 to 2010 ([Beaulieu and Landry, 2010](#)), and this situation did not change from 2010 to 2015 (see [Table 1](#) above).

The province of Quebec is ahead of all other provinces in terms of the use of purchasing groups and of the low prices it can get from suppliers ([Nollet and Beaulieu, 2003](#)) and our recent observations and discussions confirm that this is still the case. Despite this reality, performance management in the Quebec healthcare system is far from being as mature as one would expect, also considering that it is the most important budget item for

the government with over \$32 billion Canadian dollars, or 49% of Quebec's budget, excluding repayment of the debt ([Secrétariat du Conseil du trésor, 2014](#)).

##### 4.1.1. The functioning of purchasing groups

In Quebec, the purchasing groups in healthcare follow the co-operative approach. Therefore, each group has its own resources and gets its mandates to negotiate from the members, which can be large general hospitals, university hospitals, or smaller-size hospitals focused on specific needs: youth, mental problems or physical readaptation. Consequently, the members within the same purchasing group can be quite heterogeneous. Although they should pay their dues based on the annual budget for purchases, members do not have to use their purchasing group to make any of their purchases.

Depending on the mandates given by the HCs to the purchasing group, one (or more) supplier(s) can be selected. Actually, the mandates are given by the "purchasing managers committee", made of representatives of the purchasing departments from the HCs. Then, the purchasing group is authorized to procure those items, based on each HC's forecast for each item. However, a center can also have a contract with a supplier other than the one selected by the purchasing group.

Once the mandates are received, the contract managers analyze the needs, define a strategy, prepare the tenders, and, subsequently, analyze the bids received. In order to refine their strategy and to prepare tenders, those specialists often rely on "user committees", made of users within HCs who are members of the purchasing group. For instance, depending on the products, a committee could be made of kitchens' managers, pharmacists or nurses. Following the strategy selected for the service or good purchased, the user committee might also provide guidance during the supplier selection process. Once the contract is in force, the contract manager handles complaints (if any) from HCs and, if required, makes adjustments to the contract by using addenda.

##### 4.1.2. Performance measurement in Quebec healthcare

In the province, HCs use an average of seven (7) performance measures out of the 20 mentioned in the survey by [Beaulieu and Roy \(2015\)](#), but they do so only about once a year. Only 55% of the HCs do some follow up on the savings computed at the signature of a contract. [Table 3](#) mentions the four measures most often used by the HCs within the purchasing group selected for the case study; for comparative purposes, the average percentage of HCs using those same measures is also mentioned for the other three groups taken as a whole. Clearly, the results can vary substantially from one region associated to a given purchasing group to any of the other three regions (see [Table 3](#)).

It is interesting to point out that 20% of HCs do not use any performance measure for purchasing; some of the CPOs consider that it is mostly due to the rigidity of the information system. As one interviewee says: "The information systems are not really

**Table 3**

The top four purchasing performance measures used by members (HCs) (%).

| Performance measure used                         | In the region for the case study | Average of the other three (3) regions in the province |
|--|----------------------------------|--|
| Total number of purchase orders                  | 85%                              | 57%  |
| Number of active products in the database        | 75%                              | 48%  |
| Total cost for the purchase orders               | 75%                              | 59%  |
| Savings generated at the signature of a contract | 60%                              | 53%  |

user-friendly; data mining can prove to be challenging and our employees in supply are not very familiar with the methods to do it properly". Why then are 45% of the centers not even using the measure about savings? One interviewee mentioned that he believes that one of the main reasons is: "This is like a can of worms; on which basis should we measure savings?" In the interviewee's region –and, therefore, for the corresponding purchasing group– there is a lot of heterogeneity in the types of HCs.

#### 4.2. The case studied

This sub-section is divided in two segments, one each for the two dimensions in the research question, i.e. the dynamics between the purchasing group and its members, and the performance measures used.

##### 4.2.1. Inter-organizational dynamics

As already mentioned, inter-organizational dynamics involves conflicts emerging from divergent interests and different perceptions (Cahill et al., 2010). Based on the interviews of the CFOs and of the CPOs belonging to the HCs who are members of the purchasing group, this sub-section describes the main differences among members' perceptions of the purchasing group. The interviewees' perceptions fall in three categories with about the same numbers in each: 1) very critical, considering that the purchasing group's strategy should be re-examined; 2) very satisfied with the actions taken and the results obtained; 3) reasonably satisfied, but the interviewees made suggestions as to how the group's performance could be improved.

In terms of the critical comments, some CFOs and some CPOs complained that the purchasing group was not in touch with the HCs' needs (and previous studies about purchasing groups revealed the same opinion, for instance Johnson (1999); Nollet and Beaulieu (2003, 2005); Schneller (2009). "There are tensions between the purchasing group and some of its members, who mention that there is too much rigidity in the processes used by the group", said one of the interviewees. Some comments are more specific; for example, in some of the mandates, the purchasing group's work is perceived to be incomplete; some needs are not considered by the group, "... who does not even want to negotiate all types of items that we asked them to take care of on our behalf". Some of the requirements have not been included in the call for tenders; consequently: "...we will have to do the work, while we don't have the negotiation power of all our volume." While many small HCs rely on the purchasing group to provide expertise, some of those feel that their volume is not sufficient to join the group. However, some similar-size centers have taken advantage of the large volumes offered by the purchasing group. This shows a lack of communication by the purchasing group.

While some interviewees regret that the purchasing group withdrew from some of the mandates it used to accept, others would like that the group takes on many more items to negotiate on behalf of the HCs. However, the members do not always agree on what those mandates could be. While some CFOs suggested to add more "services", many CPOs felt that this would not fit as well with the purchasing group's mission or that it would be difficult to do so. One CPO explains why: "Services are often specific to users' needs; consolidation potential is very, very limited in this area."

Other interviewees insisted that the users –mostly health professionals– considered that the items selected by the purchasing group were inappropriate: "In some cases, when we see the item selected, we prefer to make our own call for tenders, and then deal with different suppliers."

However, a second group of CPOs and CFOs say that they are very satisfied with the purchasing group and that they would even collaborate more if they had sufficient resources, as well in

purchasing as for user committees. Some of those interviewees criticized other members, saying that they should adhere to the purchasing group's decision, invest more time so that the process is successful, and "...aim at having more items with the same specifications as other members have."

The purchasing group's contract managers also have critics toward group members, particularly about the time it takes to get the information for the quantities required. A contract manager mentions that about 50% of the HCs provide the information on time, a situation which forces him to take time for reminders and follow ups; therefore, it is not surprising that many CPOs complain that "the processing time is too long"; in fact, contract managers say that "... it is often the same healthcare centers which are late in providing the information requested". Practically-speaking, one main factor that also adds to the time required is the difficulty of finding volunteers for user committees.

Finally, as could be expected based on the literature review, contract managers insist on the fact that some HCs do not order from the suppliers retained following the purchasing group's recommendation.

##### 4.2.2. Performance measurement

Discussions with the four contract managers indicate that purchasing performance is not very developed in the purchasing group. This is true for all purchase types and characteristics, for instance: new acquisition or items purchased for the last 20 years; low or high technological level. It should be emphasized that performance measurement is not at the top of the CEO's priorities; the measures used have actually been developed by the contract managers and are considered to be "personal initiatives". The purpose is mostly to determine if the supplier selected is appreciated by the members and if the call for tenders had been well written. Although one of the contract managers prefers not to use any measure, the other three use measures such as the percentage of HCs participating in specific call for tenders, or the number of complaints about a new contract.

Only one of the interviewees computes savings, and for a few items only. The others say that, in order to demonstrate the group's usefulness, they would like to compute the savings for all items; however, when prompted for more, one interviewee said: "We lack the data to do it; we have no access as to what prices the healthcare centers would get, or even on their actual requirements for the length of the contract."

In the region of the purchasing group selected for this research, 60% of the HCs follow the savings generated when a new contract is signed. Despite the fact that this percentage is higher than all average percentages for the other three purchasing groups as a whole (see Table 2), it nevertheless comes in 4th position for the group selected in terms of use; it is interesting to note that the first three measures used by a higher percentage of the HCs are very operational: total number of purchase orders, number of active products in the database, and total cost for the purchase orders.

#### 4.3. Interviews with the CEOs, CFOs and CPOs of other purchasing groups

Is the selected purchasing group's situation representative of other Quebec healthcare purchasing groups? With regard to the inter-organizational dynamics, interviews with a dozen of CFOs and CPOs from another geographical area do present a different situation. Although this sample is small, over 80% of the interviewees view their purchasing group positively as well for communication, work climate, savings generated, as for the items selected for group contracts. In this region, HCs are more homogeneous, while in the region associated to the purchasing group selected, HCs' missions are more heterogeneous.

The CEO of one of the three other purchasing groups mentions that there is no performance measure used, although it would be useful to do so in order to demonstrate the major benefits due to having a purchasing group. Interestingly enough, another CEO emphasizes: “We have no performance measures and I don’t want to have any. Group purchasing has clearly demonstrated how it benefits its members. Discussing performance indicators suits those who doubt purchasing groups’ usefulness”.

The third CEO’s position is very different: “Our annual report documents the savings for each of the contracts. I am familiar with the healthcare centers’ numbers.” This is the group with the highest percentage of HCs taking part in the contracts, but also where 75% of the HCs follow the savings made on each contract.

#### 4.4. Main differences between the group studied and the other three purchasing groups

With regard to inter-organizational dynamics, there is no clear direction: about a third of the respondents believe that the relationship is good, while the same number thinks the opposite, and a third groups sits in the middle. This dynamics is influenced by perceptions such as product quality and minimum order quantities, which are nevertheless part of the purchasing group’s roles. Discussions with some of the CFOs and CPOs of HCs which are part of another purchasing group indicate that the dynamics between the group and the members appears to be different in that group, where members are more supportive of the purchasing group’s actions.

In the purchasing group studied, performance measures are not used much and depend on what contract managers have set up themselves; this is similar to what two other purchasing groups do. In fact, there is only one purchasing group which follows systematically the savings on each new contract.

In the case studied, the lack of performance measures for purchasing seems to maintain a “less-than-optimal” dynamics among the members and with the group, possibly because there is little hard evidence to support one’s position. Also, in the purchasing group where more HCs than in the other purchasing groups measure savings, the dynamics is more favorable to the purchasing group’s actions. However, this raises an important question: “Is it the more favorable dynamics which influences more performance measurement or is it the opposite?” This question leads to the next section, where we discuss the results presented in this section and explore the relationships between purchasing group performance measurement and inter-organizational dynamics within purchasing groups.

## 5. Discussion

In industrialized countries, governments are looking for ways to control cost increases in healthcare. As is the case for Quebec – which is ahead of the other Canadian provinces in terms of savings made by purchasing groups in healthcare–, many countries count on purchasing groups to generate major savings. But in order to do so, a purchasing group’s initiatives should be efficient, and not hampered by the various tensions mentioned in the literature (Johnson 1999; Schotanus et al., 2010).

### 5.1. A complex inter-organizational dynamics

The purchasing group selected describes a situation which is more complex than what is mentioned in the purchasing literature. Granted that the members have voiced opinions already mentioned in the literature (Johnson, 1999), but in this situation contract managers have also voiced their critics toward members.

In addition, our research differs from previous research about dynamics (which tends to deal with the “group vs members” dichotomy), by also considering the critics formulated by members toward other members. This observation is indeed related to Busi and Bititci (2006) mentioning that inter-organizational dynamics tend to increase the complexity of those interactions.

The case studied also supports Sharda and Chatterjee’s ideas (2011) when they mention that conflicts emerge from any type of relationship where there is an organizational dependence. In the purchasing group selected, the group depends upon the information provided by the members and on their expertise to determine the volume to be contracted, but also for the specifications of each item purchased, while members depend on the purchasing group to generate additional savings; and since savings often depend on the volume, the more members join on a contract, the higher the savings might be. Cahill et al. (2010) mentioned that a conflict results from the fact that one party’s organizational interests are being opposed or negatively impacted by the other party. In healthcare, whose interest are we talking about? In the introduction, we mentioned that a purchasing group is an additional intermediary between suppliers and HCs. In fact, instead of “HCs”, we could have written the word “users”; in healthcare, one of the user groups is the doctors, and they do carry a lot of influence over product selection (Montgomery and Schneller, 2007). Should a member privilege doctors’ choices or the purchasing group’s?

As mentioned in the literature, there are often many factors influencing this dynamics, such as the individuals involved (for instance, contract managers), expectations (for instance, the variety in terms of requirements), and past relationships (Giannakis, 2007), or, more specifically for purchasing groups, the heterogeneity of the members (Nollet and Beaulieu, 2005). In the case studied, member heterogeneity might well impact the interests at stake, which can even be conflictual in some cases. Clearly, this might also influence the heterogeneity of the items used in the HCs, making more standardization much more difficult. In such a situation, what should the more important mandates for a purchasing group be? And, if there are no improvements, there will be more dissatisfied customers (members), and this situation will also impact negatively on the perceived purchasing group’s performance level.

### 5.2. A lack of performance measures

Our research question targeted the impact of performance measurement on inter-organizational dynamics for a purchasing group and its members. However, as mentioned at the end of the previous section, could the influence be in the other direction as well? Based on the management literature, the answer would be affirmative (Busi and Bititci, 2006; Arshinder et al., 2008; Caglio and Ditillo, 2008). Measuring purchasing performance is at a rudimentary stage in most Quebec HCs. Some interviewees believe that this is caused by the rigid information systems used, which make it difficult to generate the reports that would be required to compute the various measures. This could explain why it is the very operational measures which are used by the HCs, since it is easy to get that data (see Table 2). However, a higher percentage of HCs who are members of the purchasing group studied use performance measures than is the case, on average, for the other three groups. Nevertheless, the “Savings generated at the signature of a contract” measure, which is more strategic in nature (it corresponds to a main objective by the group), comes in fourth place –out of four measures surveyed– (60% of HCs use it); the comparable percentage for the average of the other three group percentages stands at 53%. Those numbers are low, since it is often said that it is the most-often used measure in purchasing (Cousins et al., 2008). The fact that about 40% of HCs don’t use that measure



could contribute to the perception that, based on savings only, purchasing groups can't justify their existence; in fact, some HCs might be convinced to do well, and consequently, they don't measure the savings. In addition, the fact that no comparative data are available doesn't make it possible for a purchasing group to show the savings generated.

### 5.3. Performance measures as incentives

Beyond technological consideration, deciders could choose to develop performance measures and share the data required to set up and maintain the database. However, in the context of the case studied, it is impossible to develop more complex measures such as savings, when HCs don't share with the group the information about the prices offered by suppliers. Other factors are also at play. For instance, when a purchasing group's CEO clearly states to be unwilling to develop performance measures, this says a lot about his/her fear (or perception) that his/her interests would not be well served. Therefore, the fact that there is no performance measure used helps to maintain a status quo which suits some individuals more than others. The case also shows that there is a relationship between what the members and the purchasing group do: HCs don't use performance measures much, even for computing the savings made following the negotiation of a new contract (45% of HCs don't do so). In those circumstances, it might prove difficult for members to demand of their purchasing group that it does what they don't do themselves.

Considering that the dynamics does not depend only on savings, which performance measures could be developed to improve the present situation? As suggested by [Busi and Bititci \(2006\)](#), in an inter-organizational context, performance measures must provide a useful feedback on operations. The reasons for the satisfaction/dissatisfaction identified in this research could be used as a discussion basis to develop a first round of useful performance measures. For example, contract managers mention that 50% of the HCs are late for providing essential data for the call for tenders; this situation slows down the supplier selection process; it is possible to consider that a performance measure could be developed accordingly. Clearly, other performance measures could be developed, but this would have been a different –albeit interesting– research by itself.

The framework proposed in [Fig. 2](#) summarizes the results of this research. The main findings indicate: 1) the recursive loop

between purchasing performance measurement and the inter-organizational dynamics within the purchasing group; 2) the complexity of inter-organizational dynamics within the purchasing group intertwining the dynamics between the group and its members, as well as among members; 3) the characteristics that should be considered to study the overall phenomena in their complexity.

This framework can help both researchers and managers to better understand the dynamics in a situation such as the one described in this article. However, the framework should be considered as a first stage toward a model, and it has to be confronted to other cases and other contexts.

Purchasing groups can be considered as a relevant field to study the dynamics between performance measurement and inter-firms cooperation, as mentioned in [Arshinder et al. \(2008\)](#) and [Caglio and Ditillo \(2008\)](#); our results also provide some elements to study processes and dynamics in reality, including the less-known impacts of performance measurement.

There are limits to this study. We are well aware that our research is based on a specific situation. We believe that the fact that Quebec purchasing groups are ahead of their counterparts in other provinces, that there were only four purchasing groups in the population, and that we interviewed top managers from many HCs, as well as the CEOs of the other three purchasing groups, has alleviated what some researchers challenge, i.e. one in-depth case study bringing much-needed information on a complex topic.

Second, we initially mentioned three types of purchasing groups, which were labelled “supplier-client”, “cooperative”, and “confederation”; as mentioned before, the case selected was of the “cooperative” type. Would the results have been the same for the types other than “cooperative”, which is the one used in Quebec? Would these other two types, which imply different rights and obligations, require different performance measures? This limits somewhat the possible generalization of our results.

A third limit is the fact that we did not question the interviewees directly on the relationship between inter-organizational dynamics and performance measures. This limit does not modify our analysis of the situation, although it would have been interesting to know if most interviewees agreed on the relationship between both dimensions, and... on our *perception* of it.

Finally, this research was focused on the dynamics between the purchasing group and its members. We said previously that the

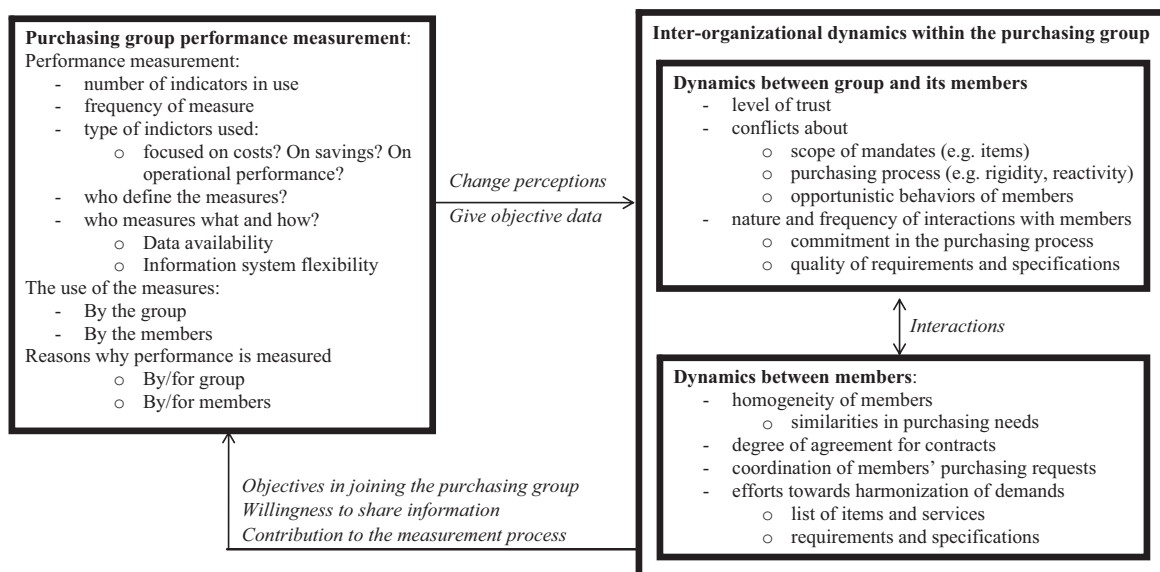


Fig. 2. Relationships between purchasing group performance measurement and inter-organizational dynamics within the purchasing group.

group was a facilitator in the relationship between buyers and suppliers, creating a triadic relationship. It would then be possible to include the suppliers' viewpoint in the analysis above. And, going one step further, the ultimate users (for example, the medical staff and doctors) could provide very useful information on the relationship and its implications.

## 6. Conclusion

In the context of more stringent cost controls in healthcare within industrialized nations, purchasing groups are often considered as a powerful leverage to generate savings. Despite the fact that there is now more academic work done and published on purchasing groups, Schotanus and Telgen (2007) had identified the lack of research on the type of purchasing group and on performance; this is also true for other inter-organizational contexts (Busi and Bititci, 2006; Arshinder et al., 2008; Caglio and Ditillo, 2008; Cousins et al., 2008; Akyuz and Erkan, 2010), and this supports our intent to discuss that relationship. The inter-organizational context has major implications for purchasing groups, including the fact that the dynamics between a group and its members is likely to influence the group's performance (Johnson, 1999; Nollet and Beaulieu, 2005; Schneller, 2009). This is why one of the main objectives of this research was to study the impact that performance measures have on the dynamics between a group and its members.

We used an in-depth case study, and interviewed members (CFOs, and CPOs of HCs) and contract managers of a purchasing group. In addition, we interviewed the CEOs of the other three groups, as well as the members from another region, and, therefore, working with a different purchasing group.

Our research makes it possible to grasp the complexity of the inter-organizational dynamics, not only from a dyadic perspective (purchasing group and its members), but as well from a member-to-member perspective, since some are critical toward each other. Clearly, these critics are based on perceptions, a situation illustrating that the lack of performance measures maintains a dynamics which could prove detrimental to the purchasing group. Our case reflects appropriately performance management in purchasing in the Quebec healthcare system, where many of the measures used depend on individuals and are not used systematically. However, additional interviews show that this situation can definitely be improved by using appropriate performance measures more often, and by having a constructive inter-organizational dynamics.

Proper performance measurement should alleviate a portion of the *perception* associated to purchasing group performance: if there are complaints from the group or its members, what evidence about inefficiencies can be provided? If no performance level is used as a comparison basis, how can the group assess that there are indeed improvements? Even if there would be measures, which ones would be appropriate? Based on our observations, the measures should focus on the purchasing group's performance for the dimensions that CEOs find important. Second, they should also be meaningful to the members (for instance, CFOs and CPOs), since the measures could help address some issues with facts and actual data rather than only with words... and intents. Otherwise, inter-organizational issues will continue to reduce the positive impact that purchasing groups could have.

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