

# Store location in a plural form network

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## Abstract

The development of retail and service networks implies new location models integrating the store status (franchised or company-owned). The implementation of plural form networks changed the dimensions of the store location problem. Traditional store location models do not take the status into account or consider either a strictly franchised or a strictly company-owned chain. Only one model dealt with this problem of plurality but about 20 years ago and knowledge about plural form networks was very limited at that time. In a modeling process of store location involving the status choice, two main research questions should be solved: 1) Is this modeling process identical for any kind of networks? 2) How can the status be integrated in a location model and in which kind of models? This paper tries to answer the first question through an exploratory survey with 18 network managers. The store location decision process is investigated and variables supposed to influence this process are underscored. A typology of location processes is proposed and some suggestions are made related to the choice of a location model depending on the location process and the strategy of the chain.

## Keywords

Company-owned systems, franchising, location model, plural form, retail and service network.

## 1 Introduction

Networking is probably one of the major phenomena in retailing and service industry of the end of the last century and the largest company in the world is now a retail company (Wal-Mart) with more than 5000 stores. Several researchers have shown the importance of location decisions for retail and service networks con-

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sultants point out location education as well. McKenna and Cohen (1999) define as basic principles: “A strategic overview, planning elements, the details of implementation, use of tools and techniques, problem solving, and management of the process to shorten the learning curve.

In franchised chains, location decision is critical and probably more difficult in its process because of the presence of a franchisor and a franchisee: two independent business people. Who is in charge of the location decision? Is it the franchisor or the franchisee? Lafontaine (1992) highlighted the need for a high location speed for a chain expansion. Shane (1996) insists on cost minimization through quick and good locations and Michael (2003) demonstrates the superiority of franchising in pioneering markets which means locating.

The location decision process is thus complex but the decision should be made as quick as possible specifically in high competitive markets. That leads to at least two location problems: 1) How to locate one specific store? 2) How to locate stores in a same chain by avoiding cannibalization? Since the law of retail gravitation (Reilly, 1931) the first question has received a considerable number of answers on various forms: check lists (Applebaum, 1966; Kane, 1966; Nelson, 1958), analog method (Applebaum, 1968), proximal area method (Ghosh and McLafferty, 1987) using Thyssen or Dirichlet polygons (Dirichlet, 1850; Thiessen and Alter, 1911), gravity models (Converse, 1949; Huff, 1964), interaction models (Nakanishi and Cooper, 1974). The second question implies a network approach that means solving a multiple location problem. Several modeling processes were proposed: Multiloc (Achabal, Gorr and Mahajan, 1982), a p-median approach (Weber, 1909, Cooper, 1964) combined with an MCI (Multiplicative Competitive Interaction) model (Nakanishi and Cooper, 1974), a qualitative approach based on managerial judgments (Durvasula, Sharma and Andrews, 1992), a multi-objective approach (Current and Storbeck, 1994; Kolli and Evans, 1999; Pirkul, Narasimhan and De, 1987).

But these methods and models do not take into account a very important stake in today network management: the choice of store status whatever business (e.g. stores, hotels, restaurants, ...). A store can be franchised or company-owned by considering the two most popular store statuses. And a network can be purely franchised, purely company-owned or managed through a plural form organization (Bradach, 1997). Because many store networks are now plural form organized (Bradach, 1998), there is a demand from network managers for models including this question: which status for a new store in a plural form network? And the answer to this question could depend on the plurality rate or percentage of company-owned (PCO) units within the network.

Most of the models consider either a strictly company-owned arrangement (Achabal, Gorr and Mahajan, 1982; Lovell, 1970; Min 1987) or a strictly franchised system (Ghosh and Craig, 1991; Kolli and Evans, 1999; Lovell, 1971) with a possibility of master franchising (Zeller, Achabal and Brown, 1980). Only three papers deal with both franchised and company-owned units (Chaudhuri, Ghosh and Spell, 2001; Markland and Furst, 1974; Pirkul, Narasimhan and De, 1987) but with no consideration of what is called today plural form organizations.

In a first section, plural forms are described to highlight their specificity regarding store location. A second section reviews the literature in which store location models are dealing with store status. The third section describes the methodology of a qualitative survey on the store location process related to store organizational considerations and implemented among decision makers. Then results are displayed and discussed in a fourth section and a modeling procedure is proposed to cope with the difficulty of integrating the status in location models.

## 2 Plural form and store location problems

In a plural form system both franchised and wholly-owned stores can be opened within the same chain. The specificity of plural form organization questioned the transaction cost theory (Bradach and Eccles, 1989). This kind of system is neither strictly a firm nor strictly a market but something in-between based on the tapered integration theory (Harrigan, 1983) which highlights a production mix from both inside and outside organizations. This specificity is shown in fast food restaurants by Bradach (1997). And Bradach (1998) suggests a specific management model of plural form organizations in this sector and enlarged later to three other retail and service sectors: bakeries, hotels and cosmetic stores (Cliquet, 2000) through exploratory research works. The Bradach's model (1998) points out four challenges a store network has to meet: 1) adding new units; 2) maintaining concept uniformity; 3) local responsiveness; 4) systemwide adaptation. This model highlights also the interaction between the first challenge which concerns the unit growth process and the three management challenges which constitutes the operating model. That means clearly that the store location decision process is related to the notion of concept uniformity – in other words, the protection of the brand –, to the ability to respond locally to competitors and to the necessity to adapt the concept in the long run.

Developing the network territorial coverage is a way to diffuse the brand but also a risk to loose control over it and to see the quality of the service decreasing (Manolis, Dahlstrom and Nygaard, 1995). Mixing locally company-owned and franchised units is often seen as a good way to manage concept and brand uniformity and it has been recently proved that franchised chains with strongest brands have the highest PCO rates (Lafontaine and Shaw, 2005). The presence of wholly-owned units enables a better brand management control over some franchisees' initiatives. Pitt, Napoli and Van der Merwe (2003) propose an adaptation of the Keller's brand report card (2000) to measure the franchised brand at the franchisee's level to better assess the brand equity locally. Furthermore some strategic locations most of the time too expensive for a franchisee are opened by franchisors themselves which can afford that kind of site for a flagship store to display the strength of the brand (Cliquet, 2000). Bradach (1998) insists also on the opportunity given by a plural form organization to see franchisees on the one hand imitating franchisor's units considered pilot units (modeling effect) and on the

other hand competing with wholly-owned units (ratcheting effect) implementing a real benchmarking system between units. Responding locally to competition actions needs to improve knowledge on local markets (Minkler, 1990) in order to resist to local market pressure (Bradach, 1998). Once again when company-owned units are located in these local markets, information can feed back the franchisor's strategic and tactical reflection (local learning process). This is less possible in a strictly franchised system where no one can impose to franchisees to send information on local markets to the network operator. Systemwide adaptation needs to succeed in exploitation and exploration as well and thus an efficient mutual learning process (Sorenson and Sørensen, 2001) to favor new ideas able to fit new trends in the market. Company units, as pilot units, help in testing innovations which is always more difficult to do with franchisees.

In a plural form network company-owned units are not the only ones to bring advantages to the franchisor. Indeed franchisees constitute the dynamic part of the chain because they own their business whereas company-owned units entail a better control over the system (Brickley and Dark, 1987; Mathewson and Winter, 1985; Norton, 1988). But there are also idiosyncratic factors due to particular features of certain sectors. For instance, in cosmetic retail market and more specifically in nail stores (Cliquet and Croizean, 2002) but also in restaurant chains to learn how to deal with new products, training is a key factor and company-owned units contribute to diffuse new practices.

Meeting the first Bradach's challenge of unit growth related to the three other challenges implies the key problem to be solved: where should company-owned units be located within a plural form network? Very few attempts in modeling that problem have been proposed so far.

### **3 Store location models and store status**

Ghosh and Craig (1991) proposed a franchise network location model called Fransys. It is actually an application of Multiloc (Achabal, Gorr and Mahajan, 1982). The Fransys model was designed to reach two apparently contradictory objectives: maximizing sales and minimizing cannibalization of sales of existing stores in order to avoid conflicts with the franchisees. Other attempts were already proposed to answer this question (Zeller, Achabal and Brown, 1980; Kaufmann and Rangan, 1990). And encroachment seems to be presently a critical problem in an increasing number of franchised chains (Stassen and Mittelstaedt, 1994; Kalnins, 2004). The basic principle of the Multiloc approach and more generally speaking of the expansion of a store chain can be summarized this way: the chain that looks for maximizing its profit will continue to establish new stores until the sum of the marginal cost of a new establishment and the running costs of the existing stores is equal to the marginal sales amount. The location-allocation model based on a p-median algorithm enables to determine in which market area one or more new stores should be located. Then in each market area new establishments can be en-

visaged through the implementation of a MCI (Multiplicative Competitive Interaction) model (Nakanishi and Cooper, 1974). One can wonder whether the Fransys model can be adapted or not to the specific case of plural form networks? The difficulty stands in the fact that neither p-median nor MCI model can a priori take into account the status of the store status unless the objective function of location-allocation model is changed.

Markland and Furst (1974) propose a model based on a probabilistic capital budgeting approach to get the optimal number of units to franchise. Pirkul, Narasimham and De (1987) improve this model using budgetary restrictions since it enables the decision maker to choose between company-owned and franchise management. The goal of this model is to maximize the expected franchisor revenues from each type of units.

Current and Storbeck (1994) also present a similar model associated with site selection, and which takes into consideration some contradictory objectives between franchisees and franchisor. But none of these models take into account the synergistic advantages of plural form organizations as Bradach (1998) developed them.

The link between the location quality and the statutory choice has recently been studied (Chaudhuri, Ghosh, and Spell, 2001) based on a Cobb-Douglas production function for every site. The model cannot be validated before the concept of store chain and its long term viability are firmly established. On the one hand, an asymmetry of information between franchisor and franchisee emerges since the former knows the distribution of locations concerning their quality whereas the latter does not. On the other hand, while the franchisee must accept the sites offered with no real negotiating power, the franchisor establishes his/her own stores in the sites supposed to be the most profitable. This is a direct application of the imperfect markets theory. Particular situations arise when the franchisor gives financing to a franchisee, thus showing that he does not utilize the franchise as a simple financial substitute. This model is designed to demonstrate the location quality is higher for company-owned units than for franchised units, but provides decision-makers with no real help in locating units! The goal of this article is more theoretical and aims at developing a theory of franchising based on location which is a quite acceptable objective but different from the present one.

The evolution of store network management takes up the matter of modeling store location decision process again. Even though some parts of the problem begin to be known, such a decision model is still difficult to design and implement because store network management is far too complex and the store location process modeled so far is too simple and even simplistic. Bradach and Eccles (1989) denounced the much too mechanistic character of the choice between franchised and company-owned at the local level, choice which can be schematized this way:

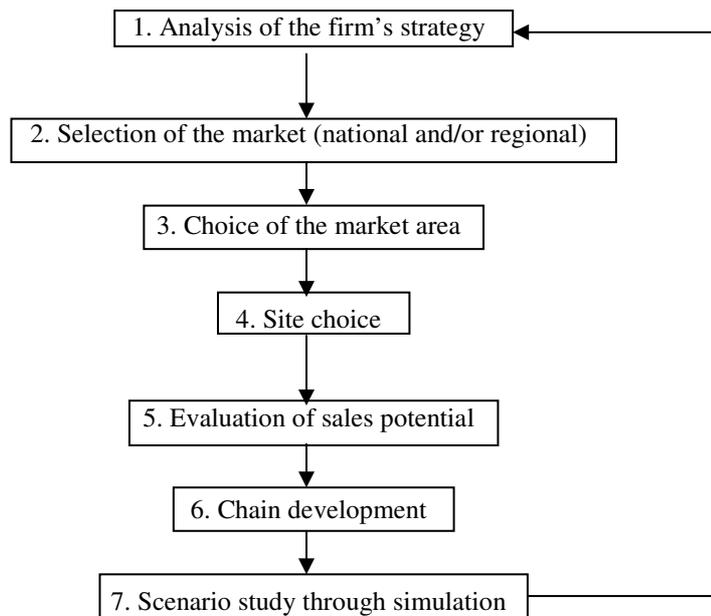
1. For each site, there exists a superior organizational form
2. Firms select a site, decide which control mechanism has to be implemented (authority, market and/or trust, or a combination of these three elements) and rapidly recruit a qualified manager or owner
3. The control mechanism is specific to the transaction

Hence the three traditional phases of store location in a process supposed to take into account the store status can be displayed: 1) site selection; 2) choice of control mechanism (market or hierarchy); 3) rapid recruitment of a manager or of a franchisee, which constitutes a reduction of the real location decision process, due to, according to Bradach (1998), classical business theories (agency or transaction costs) and other approaches founded on the performance or the ownership structures. But actually two critical questions should first be answered (Bradach and Eccles, 1989):

- Who has the money (operator or franchisee)?
- What type of manager (salaried or franchisee) is available?

In other words, where are the financial and human resources?

Answering this question and then solving the problem of integrating legal status choice need to deal with the store location decision-making process. A well-known retail location decision making process (Ghosh and McLafferty, 1987) is chosen to be applied to both retail and service firms and can be diagrammed as in figure 1.



**Figure 1.** Retail location decision-making process

Actually in many cases it seems that one or the other of the control mechanisms will function and that these mechanisms are most of the time chosen according to vagaries of circumstances (Bradach, 1998): Who comes up with the idea of a new site? Who brings the money? Are qualified managers available? etc. And only a few papers deal with store status choice in a local, concrete con-

text, except publications with more professional aims (Cohen, 1999). However store location in a franchised network seems to be really a critical decision: “While managerial capabilities are an important ingredient for success, the selection of a community within which to locate is probably more important” (Bush, Thatam and Hair, 1974).

A field research is now described to verify from the decision-makers’ opinions whether models proposed in the literature fit interviewees’ opinion concerning store location (or any other unit: hotel, restaurant, bank branch, movie theater, etc...), and thus four propositions are examined in this field research:

- Proposition 1: the initial years are more devoted to franchise (Martin and Justis, 1993);
- Proposition 2: the more remote units are generally franchised (Rubin, 1978);
- Proposition 3: the most profitable units are mainly company-owned (Hunt, 1973; Caves and Murphy, 1976), because of an *a priori* choice of company-owned in large cities (or more precisely “downtown”) and the rest in franchise;
- Proposition 4: the units requiring the largest investment are generally company-owned (Cliquet, 2000).

The supremacy of individual circumstances, or the supremacy over vagaries of circumstances (Bradach, 1998), can be concluded, as shown in the Forward and Fulop study (1993) in the United Kingdom.

Another element can affect the local franchise/company-owned choice. If established franchisors prefer buying the site in order to better control location and to maintain their development and performance control, more recent arrivals to the market lean towards rapid development and suggest that franchisees rent their site and be responsible for their generous fees. Franchisees with humble means want more than anything to reserve what little they have for the development of their business. However, leaving the franchisee to choose his/her site and negotiate his/her lease or purchase agreement presents long term risks for the franchisor (Carlsson, 1994).

## 4 Methodology of an exploratory study

Thus more knowledge is needed to better understand the decision making process related to the location of either franchised or company-owned units. For that purpose an exploratory study was conducted among 18 French franchisors who recently opened new units. The purpose of this exploratory study was to understand the legal status choice process in a store location procedure within a retail or service network. The interviewees were either the president (founder), the top manager of the company, or the vice-president for network development. Data were also collected on the PCO rate, the degree of concept formalization and the brand positioning. A list of criteria related to the location process (see table 1) was dis-

played as well and interviewees were asked to assess each of them. Figure 1 was shown to interviewees in order to collect their reactions according to various location decisions. These semi-directive interviews were carried out with the aide of an interview guide which facilitated:

- the development of the themes linked to the concepts and variables associated with the process studied
- the development of the themes linked to the concepts and variables associated with the process studied
- the collection of classifications for the implementation of the multi-criteria method
- the choice of intervention periods in the location process

The exploratory nature of the approach excludes testing the propositions suggested as hypotheses on a statistical plan. Moreover, it should be said that the topic of this survey is very strategic and several companies refused to answer whereas some others tended to describe more preferable location policies than real ones and we should move apart some of these interviews.

## 5 Results

All of the networks do not use the same approach to deal with the problem. Certain network directors consider statutory choice an essential strategic decision, while others see it as strictly tactical. Others envisage both the strategic and tactical aspects of this decision. This is why we begin by presenting a typology of the networks' legal establishment policies. We will then examine the results of the interviews concerning the variables and the hypotheses. Followed by exposing a typology directly inspired by the completed interviews, then the modeling difficulties in relation to the surprising disparity of the situations encountered equally concerning variable choice and the types of contracts signed with the franchisees. We will finally develop a local statutory choice model before discussing the quantitative modeling opportunities permitting the justification of the statutory choice between franchised and company-owned at the local level, and taking into account the disparity encountered. Table 1 provides an average evaluation of the variables or criteria of local site status choice.

**Table 1.** Average evaluation of choice criteria concerning the store local status

Choice criteria concerning the store local status	Criteria importance	
	Means	Standard deviation
1. Market life cycle stage	<b>6,4</b>	3,9
2. Operator's base profession	2,8	6,5
3. Operator's preference for franchising (or not)	<b>5,8</b>	4,4
4. Chain life cycle stage	3,3	6,1
5. Total financial investment cost (company unit)	4,4	5,4
6. Cost for the franchisee	3,8	5,8
7. Transaction costs	2,3	6,8
8. Economic situation	<b>5,4</b>	4,7
9. Regulation	<b>5,1</b>	4,9
10. Availability of human resource	2,5	6,7
11. Global proportion of franchisees and company units (global PCO)	<b>8,8</b>	2,3
12. Local proportion of franchisees and company units (local PCO)	<b>5,3</b>	4,8
13. Strategic site	3,5	6,0
14. Decision speed	2,8	6,5
15. Local level of chain stimulation	3,8	5,8
16. Responsiveness capacity facing competition	3,9	5,7
17. Innovation implementation capacity	<b>4,8</b>	5,1
18. quality and quantity of information stemming from stores	2,1	7,0
19. Level of relationship with local franchisees	<b>4,8</b>	5,1
20. Level of concept formalization	2,3	6,8
21. Level of concept control	2,5	6,7
22. Concept positioning	2,8	6,5

We have retained 22 variables from the research works (Cliquet, 2000). These variables were the object of discussion with the companies' representatives. An evaluation for each variable was asked.

One variable is clearly considered as most important: the global proportion of franchises and company-owned units within a network (global PCO). The market life cycle stage is also of interest for decision makers and that can entail a need for various modeling processes depending on the stage. That could also mean the introduction of temporal issues in a spatial model. The operator's preference for franchising (or not) cannot be considered in a modeling process and is related directly to decision maker. Regulation seems to be a key criterion but every chain is exposed to the same legal conditions: that could be a criterion in an international context. The importance of the local PCO has to be related to the global PCO, which means that some chains have a "glocal" approach. The innovation implementation capacity and the level of relationship with local franchisees are linked to the question of control within the network.

Concerning the four propositions to be studied in a "qualitative" way, given the small sample, very contrasting results were observed in table 2.

**Table 2.** Exploratory results of the four propositions

Propositions	Non scientific validation (qualitative)
Proposition 1 : First years are rather dedicated to franchising Proposition 2 : Most distant units are rather franchised Proposition 3 : Most profitable units are rather company-owned Proposition 4 : Units demanding biggest investments are rather company-owned	Not confirmed Confirmed or non relevant Confirmed but with differences Confirmed

Proposition 1 is as little proven as the managerial philosophy which governs the launching of a network can be diametrically opposed from one operator to another (Cliquet, 2000), even if this philosophy evolves over time and according to constraints. Proposition 2 is either confirmed in three-fourths of the cases, or non-pertinent in the networks where the local franchise/company-owned structure and balance matters most. Proposition 3 is always confirmed in large units on expensive sites, whether they be in a downtown area or in a mall where the rent charges are often out of the franchisees' reach. On the other hand, some operators are sensitive to the fact that systematically leaving the "poor" store sites to the franchisees is a dangerous policy that can generate conflicts in the long-term. Proposition 4 is confirmed concerning the most profitable units. This is even more the case for the flagship stores which, without always being profitable, are sometimes indispensable to the trade-names of certain chains in order to raise or maintain their notoriety and their brand image on highly frequented sites or very targeted frequenting.

Table 2 provides a summary of the hypotheses as they were qualitatively tested on a small sample. These propositions must be tested on a much more substantial sample. The difficulty to get information on a very strategic topic could be a real obstacle. Furthermore, location decision situations can be very different in the reality and interviewing managers could lead to collect theoretical policies instead of real ones!

The interviews revealed three groups which markedly stand out concerning the legal policies of network establishment. The typology developed in this chapter does not mean that each of the chains of these groups has the same strategy, much less the same franchise/company-owned unit proportion. In fact, this classification aims at separating strategic and/or tactical attitudes. They are founded primarily on the answer to the third question of the interview guide concerning the commercial location decision-making process generally followed by the chain. We thus distinguish between:

- those who develop a judicial-managerial strategy with choice of objective in terms of PCO in the franchised chain, then eventually local adaptation at the time of site choice. These are the "glocal" strategists – "glocal" for global in the strategy definition with a local adaptation - are most of them belong to big French groups which run several networks each;

- those who are happy choosing the legal status at the moment of choice site are the opportunistic and correspond to smaller companies running only one chain;
- those who concentrate on global strategic analysis with little consideration for local conditions. These are particularly large leading foreign groups with strong international notoriety. This is thus a quasi-ambidextrous organization where these groups are willing to change organizational status and therefore the PCO rapidly, often for purely financial and/or patrimonial considerations. The situation remains an element of local choice just at a more marginal degree. The company-owned units are more dedicated to monitor the network, or even to implement a patrimonial or pressuring strategy on the suppliers (the case of a large foreign rental car company, which needs to increase its store-owned perimeter in order to negotiate better with automakers).

In summary, the three groups identified by our study show that:

- only two stages in the location decision-making process (see figure 1) are important in store status choice: strategy analysis and site choice
- the opportunists do not consider this statutory question at the time of site choice
- the global strategists with a strong international notoriety apply in the field a policy decided upon during the analysis of company strategy
- the “glocal” strategists question themselves during these two stages

Each of these attitudes explains itself, according to the case, through considerations linked to:

- the vision of the network’s future in terms of judicial managerial structure: even by gathering the implementation conditions of a statutory policy, certain networks are not willing to do so for diverse reasons: passive competition, strong concept, less dynamic sector,... Those which are willing to do so have a precise vision, sometimes very precise, of the PCO that they can allow in their network;
- brand image: a network that is widely recognized internationally has no need to maintain the control of its concept by imposing a high PCO. Such a network, especially if it is foreign, will therefore continue its development in franchise; base profession and control of the initial stages: among distribution franchises, if the franchisor is both retailer and wholesaler, he can allow himself to implement a veritable legal policy of his sites (see the first point). On the other hand, if s/he is only a retailer, s/he should content him/herself with a strong local responsiveness to the market, which will keep him/her from having a true statutory PCO policy;
- situation: one tends to develop through store-owned units when one has the means to do so, or in other words, during favorable periods. This does not, however, keep one from respecting the decided PCO over the long-term.

It is surprising to find that the situation influences all of the decision, including those of the large leader groups. An initial trivial response hinges on the fact that the situation spares no one. However, it can be added that the impact of the situa-

tion is not the same and does not affect the networks and their decisions in the same way. The situation forces the glocal strategists to momentarily rectify the local status, but the PCO will be adhered to for some time. The situation is of course at the heart of the opportunists' choice. However, the leading international groups, taking into account the means at their disposal, will be more likely to attempt to take advantage of the situation, even if totally and abruptly changing statutory choice policy is necessary. One could opt for a strengthening of PCO for patrimonial reasons, followed by a return towards franchise by re-selling store-owned units (Baroncelli and Manaresi, 1997), thus implementing an ambidextrous organizational form (Duncan 1976).

It is important to note that certain variables such as life cycle and transaction costs were not always well understood by the interviewees. A follow-up action will hopefully work towards a semantic simplification of these concepts, even to the slight detriment of their theoretical impact. In the last paragraph, we study the models susceptible to be implemented according to this typology.

## **6 Discussion towards the conception of the new location models**

Each of the three categories of location attitudes requires at least one different type of models. Moreover, the problem can be tackled in different ways. Despite the grand complexity of the situations described above, it appears that at least two general forms of modeling can be attempted concerning understanding and predicting the status choice of a store unit:

- One type of model founded on the alternative taken directly from the decision dilemma: to open a franchise or a company-owned unit.
- One type of model based on taking into account the competition and/or the territorial coverage expected for the network

In the first case, a modeling form could consist in comparing a simple binary variable to explicative variables. The binary variable would take its values in the whole {1, 0} where 1 = franchised unit and 0= store-owned units. A "logit" model would thus be appropriate. The explanatory variables would be as continuous as categorical in the form of dummy variables (1= the phenomenon happens, 0= it does not happen).

In the second case, two modeling forms would set out to reproduce locally and/or globally the competitive climate through an adapted MULTILOC model (Achabal, Gorr and Mahajan, 1982). The grand difficulty all too well known to specialists of this type of models is called Independence of Irrelevant Alternatives (IIA). A sound geographical division of the market sector considered can provide a solution to this problem (Ghosh, 1984). Another problem is found in the choice of local solutions which can be considerable when using the p-median. Diverse solutions have been proposed (Baray and Cliquet, 2002). Most of the technical

difficulties inherent to the implementation of these models have been or are in the process of being overcome. Software based on this kind of models, or others, and mapping techniques are now appearing in the market enabling chain decision-makers to simulate the spatial consequences of their decisions and thus allowing them to better control the spatial marketing or geomarketing of their network (Cliquet, 2006).

Opportunists have no real spatial strategy for developing their network and prefer favoring a good deal first with no link with any local or global PCO. Traditional models and methods can be still adapted to such a methodology. On the other hand, glocal strategists and international groups seem to have more to gain through optimization models.

The most important difficulties will probably remain those related to data collection. Both the structure of these models and the variables to be integrated in them are known, and most are easily operational. The local approach, however, needs local data that operators or certain franchisees may not want to divulge. This will prove to be a quasi-insurmountable problem without the confidence and trust of the operators and their network. The implementation of these models will therefore require a strong cooperation by the companies. More precisely the attitudes called:

- Opportunists benefit from a MCI type modeling; a model in which status choice should be integrated as long as the objective is an increase in market share. One could call this a local establishment model.
- International groups are represented with the help of a location-allocation model which enables a global vision of a multi-establishment project, taking into account the sites asked for to which status choice in relation to global considerations will be added. Recent techniques should also allow taking certain local aspects into account without the competition (Baray and Cliquet, 2007). This model can be qualified as a non-competitive global location model.
- "Glocal" strategists, making their status decision at two levels in the process of figure 1, are modeled on the basis of MULTILOCO with introduction of status choice at both the local and global level. This model can be characterized as a "glocal" model, to use a currently fashionable word in distribution research (in other words both local and global).

As already said in the state of the art, Pirkul, Narasimhan and De (1987) propose an optimization model for a franchised chain with company-owned units but with only cost constraints considerations. Fixing a global PCO (international groups) and a local PCO (glocal strategists) could lead to a new model definition. Pirkul et al. develop an objective function  $Z_p$  to be maximized:

$$Z_p = \text{Max} \left\{ \sum_{i \in I} (c_i x_i + c'_i y_i) \right\} \quad (1)$$

given that :

$$\sum_{i \in I} a''_i x_i \leq b'' \quad (2)$$

$$\sum_{i \in S_j} (a_i x_i + a'_i y_i) \leq b_j \quad \forall j \in J \quad (3)$$

$$x_i + y_i \leq 1 \quad \forall i \in I \quad (4)$$

$$x_i, y_i \in \{0, 1\} \quad (5)$$

These authors take into account the possible existence of warehouses within the network. Because it is not also the case specifically for service network, we don't consider this option and here is the notation for the above model if we except those related to warehousing:

$I$  = set of potential locations  $i$  where a store can be opened

$c_i$  = net expected return from company-owned unit at location  $i$

$c'_i$  = net expected return from franchised unit at location  $i$

$a_i$  = expected demand net of company-owned unit at location  $i$

$a'_i$  = expected demand of net franchised unit at location  $i$

$a''_i$  = capital outlay required for company-owned unit at location  $i$

$b''$  = total capital outlay budget of the operator

$$x_i = \begin{cases} 1 & \text{if a company-owned unit is located at } i \\ 0 & \text{otherwise} \end{cases}$$

$$y_i = \begin{cases} 1 & \text{if a franchised unit is located at } i \\ 0 & \text{otherwise} \end{cases}$$

One constraint can be added related to the global PCO:

$$100(\sum x_i) / N \leq q$$

where:

$\sum x_i$  = sum of all the company-owned units

$N$  = sum of all the units of the network

$q$  = global PCO

A  $p$ -median algorithm could give the selected market areas through heuristics (Achabal, Gorr and Mahajan, 1982). Responding to glocal strategist requirements would consist in developing a logit model in each market area including an explanatory variable related to a local PCO depending on the size of the area, the importance of training, innovation tests and customer follow-up issues (Cliquet, 2000) but also other variables dealing with competition, local environment, spatial considerations, and so on... That doesn't prevent decision makers to implement a MCI model (Nakanishi and Cooper, 1974) to assess their local market-share.

The goal of the propositions is to show that researchers are far from having definitively worked out the problem of plurality of organizational forms within networks. Its relationship with location only renders its conception much more complex but should provide the necessary validation for the results of future works.

## 7 Conclusion

The theme of the plurality of organizational forms in franchise networks has literally exploded over the past few years with numerous publications. These works register in the wave of research on the flexibility of organizations as well as that of the optimization of organizational forms in a contingent framework. We have added the specific problems of location to these theoretical developments. It does not seem very credible to us only to develop a global model when the difficulties encountered in the field are so well known.

We suggest a global model of plural form optimization in franchise networks to be tested. It is a model enabling to understand and predict the relationships between PCO (defined by convention as the company-owned rate) and the variables linked to the development and survival strategies of a chain. On the other hand, we have contented ourselves with a typology and a local model. We have however been able to get a general idea of the problem which proves itself even more complex than the global model, without mentioning inevitable data collection difficulties.

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