Stakes of collaboration information systems: an analysis of point of view of the marketing managers in France

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Abstract: Our research aims at demonstrating the role of information system in the field of marketing. It is particularly a question of understanding the stakes of the information systems through its capacity to influence the marketing service of the big companies. With the changes of the environment, the problem of controlling commercial information emerges from both the theoretical and the practical point of views. Facing these problems the concepts of market scanning networks and sharing of information take more and more place in the management of the information system of the company. The conceptualization of this problem research hypothesis makes it possible to note the contribution of information systems in marketing. Therefore, in this study, we want to test if the information systems based on information sharing and networks can influence the commercial performance of the big companies. This method we used is called investigation by questionnaire. The results make it possible for us to identify significant influences of the market scanning and information technologies on the sales performance.
1 Introduction

The internationalization of market and the globalization of exchanges are such that the competitive status of big companies in France becomes more difficult to control. The opening to the world market requires a good grasp of information. This is partly justified by the increasing number of collaboration networks\(^1\) over the past years. [Le02] clarifies that the complexity urges the companies to set up a clearer and fragmented vision from this milieu towards the main players. Besides, the concept of collective Scanning System gains more and more ground among large groups especially in the field of marketing and sales. In fact, in order to establish effective strategy, every partner must provide information to feed the collaborative system. We then find ourselves in a situation where quality and the variation of accessible information keep on increasing rapidly based on technological changes and on marketing proceedings in distribution [LZ02]. Thanks to experience payback, for instance, managers can share their vision of the milieu with other players, to make it even more relevant. With emphasis on these elements as a whole, it proves to be important to verify whether the sales performance of companies is linked to the different features of their information system, particularly in terms of information technology (IT) and marketing scanning. To this regard, many researchers have studied the requisites to assess the value of information and the conditions determining the success of the information systems [Ag67], [An75], [Ma75], [Le90], [Ob95], [LB96], [Ro96], [LL00], [WB00]. Some have attempted to determine its contribution to the company performance [Do84], [DSP88], [KG91]. Based on the idea that the information system applied to marketing is crucial for a company seeking for sales expansion, IT and scanning are thought to be influential in the sales performance of companies.

\(^{1}\) In our research, networks of collaboration are defined as a whole system facilitating the relationship of companies. They foster team work and build up creativity by using collaborative tools and practices such electronic messages, shared calendar, Digital Video Conference (DVC)
2 Hypothesis and research methodology

According to [Ma90a], the only valid epistemology of creative innovation is Constructivism, because nothing else could explain how the skills could create the criteria and the rudiments of knowledge. [Le03] questions the legitimacy of scientific expertise performed by researchers by stating that constructivism appears closer to modeling of actions than status. Everything is therefore built under the influence of several players as interface. Our research process deems vibrant since we are willing to generate theoretical and practical skills. Besides, we attempt to move ahead towards an end result considering the relationship between conceptual research and field research. To this respect, our epistemological standpoint is more constructivist rather than positivist. This research must be considered as a contribution added to several other investigations already undertaken in the field of information system. However, France has only very few researches dealing with sales performance in this field. This has triggered special interest in information systems applied to marketing. Thus, our research would examine the perspective of the marketing and sales steering board of big companies as to the relationship that could be established between the information system and the sales performance. This is not only a purely theoretical and abstract work, that is a theoretical reflection-based study, but the results of our research are mainly based on experimental studies.

2.1 Hypothesis

If the information system were applied in marketing for a long time [Ko66], the study of its distribution towards performance would give mixed results and would still generate several debates nowadays in business management. This finding draws our attention on the characteristics of information system that promotes more marketing and sales efficiency. Even throughout the course of time, the information system is seen as a competition tool; very few decision-makers in marketing perceive it as a means of appreciating the market [LMR01]. Obtaining information on the market is vital for a company and it has to be handled “individually” or it is impossible in some sectors, hence, the strategic relevance of collaboration networks. In its conceptual setting, [Ch96] explained that companies adjust their information systems to the changes of milieu. In fact, these changes of marketing and sales environment will lead them, on the one hand, to set up a collective scanning, and on the other, to seek and make use of more appropriate IT in order to obtain better sales performance.

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2 Concerning positivism, the subject and the object are independent, and it requires great neutrality and an optimal outsider’s viewpoint. The production of knowledge runs through explanation and discovery.
These viewpoints stand as our work hypothesis, which rest upon the works of many researchers. They have attempted to establish a link between performance and aid system to marketing management [SCM79], [GGH86], [SVW96], [SVW98]; the scanning [Do84], [SKY94]; TI [CS83], [Ra99]. In other words, we want to elucidate the stakes of information systems by providing evidence that the sales performance level of companies could evolve thanks to the setup of networks and the share of information on marketing and sales. Our focal hypothesis will be broken into two sub-hypothesis:

H1: IT influence on sales performance

H2: the marketing scanning influences the sales performance.

2.2 Sample

We used the questionnaire method to conduct a survey. It was completed in May-June 2004 within the target population of 1465 largest companies in France (more than 1000 employees), based on the ranking of “Kompass professionnel France.” The survey was distributed in two formats: an interactive website, and the regular mailing. Among the 218 returned surveys, only 150 could be used and stored, providing a response rate of 10.23%. These companies mainly operate in the industrial sector (65.3%).

2.3 Methods used for analysis of variables.

The measures of information system with IT variables and scanning derive from previous studies that confirmed their validity. The scale used is the Likert scale comprising the positions numbered 1 to 5 (from “strongly agree” to “strongly disagree”). Please note that we have used an analysis with the main component (ACP) allowing pursuit of new variables (the new components), while summing up to the best possible information from all utilized variables for the analysis. Among the first several variables, we have identified the main relevant variables regarding our research objectives.

- Measure for Information Technology reasoning

The experimental researches on IT usually involve the use of it. It has been assessed in [VH93] through the concept of Technology display in two aspects: IT strategies and IT Infrastructure.

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3 The interviewees are mostly managers of marketing and/or senior trade officers
4 This technique helps assess the dimension of the utilized concepts and also verify if the different components of the measurement could assess the same phenomenon. It also aims at describing individuals of a population according to several quantitative variables.
Nevertheless, in [DZW91], among the six levels, we have studied the strategic impact of the IT department of the company, the management style of computer projects, technological architecture, technological scanning, the development of internal and external, and lastly the IT assessment. Throughout our experimental research, we focus particularly on the IT assessment in order to highlight the contribution to the marketing performance. Two dimensions have been retained for our measurement: infrastructure of TI\(^5\) and the use of IT in the companies.

* The IT infrastructure is evaluated with a survey the information exchange and dissemination medium with the partners:

“You are committed to your partners in the cooperation, which relies on medium of marketing and sales information”\(^6\).

* The use of IT is assessed thanks to an item on the role played by the information technology in order to facilitate the internal and external coordination process of the company:

“The IT helps facilitate direct communication between internal and external players (as part of marketing and sales service)”

“IT helps identify new customers or providers, help know them better and maintain a good relationship with them.”

- Scanning Measurement

Many researchers [Ag67], [AC94], [Pit98] have undertaken experimental works categorizing the sectors of milieu for the managers’ inspection and ways of collecting information in terms of scanning. Some have tried to develop typology based on the progress status of scanning practice of the company [FK77], [Ja84], [Ju99].

\(^5\) To this respect, we act in terms of technology breakout meaning [VH93]. In our study, we deal with infrastructure (architecture, processing, competence resources), which particularly takes into account the relationships of companies with other marketing agents.

\(^6\) By “tools for marketing and trade sharing”, we mean new information and communication technology such as Internet, Digital Video Conference (DVC), which allow big companies to efficiently communicate in the field of marketing and trade.
The experimental works of [Do84] try to determine whether there is a relationship between the intensity of scanning activities, the manager’s skills to handle information and the company’s performance. Besides, [SKY94] checked if there was disparity of performance among the companies according to the progress status of the scanning system, that is, the scanning intensity with various sectors of the milieu and the level of integration of information collected into the strategic decision-making process. Our choice of scanning measurement was based on this, despite the specificity of the sector under study. Therefore, these two elements are very important to assess the scanning in our experimental study. It is worth noting that the scanning intensity that could portray a company refers to the scanning efforts of the entire staff, including reading for special purposes, internet site visits, or informal or formal networking with outsiders. The integration of information into the strategic process refers to the consideration of collected information during the strategic decision-making process. Thus, the following suggestions are addressed to applicants so that they take a stand within the Likert scale system rated 1 to 5 (strongly disagree… to…. strongly agree)

* Scanning intensity

“Many team members of the scanning are very active in marketing and they participate in overseas assignments.”

“The scanning team is linked to several information networks and performs regular Internet surfing”

* Taking into account information as part of decision

“The collective interpretation of information helps in the decision making process among the marketing and sales board members.”

- Sales performance measurement

Some objectives are very specific to the company. However, we should use common questionnaires for all companies. The summary of the experimental works on performance helped identify the main indicators regarding: the current profitability of the company, the progress in profitability and in turnover from the market and the staff… In our research, we have discovered a great diversity of methods and measurements of marketing and sales performance.

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7 This diversity of assessment leads us to select some researchers who could improve the validity of their measurements concerning sales performance. Then, we have chosen those whom we think are adequate to be adjusted to our sales performance assessment, thus enabling us to set up links with other variables.
In these performance studies in marketing, [RZK95], [PZB88], [Ma90b] have assessed the recognized quality. In the same field, [Fo96] assessed the company’s reputation. We can still find this type of measurement in the works of [CP93] in terms of brand image. Still concerning the brand, [Ke93] and [Aa91] have assessed the marketing performance by the brand merit. Many researchers have also evaluated the marketing performance concerning customers including [JS95], [Ol99], [Re96] who assessed the loyalty of customers. Moreover, the customers’ satisfaction was used by [AS93], [Yi90], [Jo96] to assess the marketing and sales performance. And lastly, some researchers have maintained the quantitative or objective measurements as part of the market and turnover [NC88], [Do96].

Stimulated by these works, we have kept the objective indicators as turnover and the market share. Given the increasing importance of the study on customers within the company, we have completed those two indicators in terms of profitability of marketing prospect or the acquisition of new customer. Moreover, we have used more subjective dimensions such as an appreciation of retaining and making customers more loyal, promoting quality in terms of image namely on the products and services of the company. These two types of measurements have caused us to separate two categories of sales performances: the quantitative sales performance and the qualitative one.

In short, our performance measurement will operate according to the six indicators. The leader should mention the progress throughout the past years based on the scale from [CH93], “from exceedingly decreased ….to exceedingly increased” on the following:

* The quantitative sales performance

Turnover

The acquisition of new customers or profitability of sales and marketing prospect actions.

The market share

* The qualitative sales performance

Retaining and making customers loyal

The brand and the quality of products and services

The recapture of categories of “former” customers back into competition

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8 Based on our research objective, “profitability of sales and marketing prospect actions” is defined by the increase of the number of customers based on the prospect actions undertaken by the company.

9 How do current and potential customers assess the company vis-à-vis competition (reputation, product, price, service, sales force)
3 Results

Data have provided calculations of correlation ratio and an analysis of variance (ANOVA). In this article, we have summed them up into tables the statistics results.

3.1 The IT influence on the sales performance (H1)

We wanted to verify in this section the level of validity of our hypothesis H1 which was inspired from the experimental studies of [OKK92] regarding the advantages and the disadvantages of the use of electronic systems in the relationship with sales partners, and the works of [CS83] of the relationship between performance and IT uses.

- Influence of the quantitative performance (H1a)

<table>
<thead>
<tr>
<th>The Information technologies</th>
<th>Correlation ratio</th>
<th>Notification rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Infrastructure</td>
<td>0.233</td>
<td>0.004</td>
</tr>
<tr>
<td>Level of IT use</td>
<td>0.381</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 1: Correlation between IT and the quantitative performance

- As for the infrastructure, the table shows the notification rate with weak ratio of positive correlation. This leads us to think that the quantitative sales performance is positively and significantly influenced by the IT infrastructure. In fact, the size of the company is such that a variety of cooperation could exist. The cooperation among these sales agents could mean an increase of exchange which requires means for information sharing. The increase of trade exchanges seems to justify the raise in turnover and the market share. Thus, the more IT infrastructure uses tools for information sharing based on cooperation among sales partners, the higher the quantitative performance.

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10 The software used is SPSS. Concerning the test of our hypothesis, we consider that there is a relation between the variables we have studied if the rate of notification is weak: below 0.005 (weak margin of error)
- The level of IT seems to have an impact on the progress of quantitative performance. With a weak notification rate, and a positive correlation ratio, we can state that IT can foster quantitative performance. Please be reminded that the level of IT use was defined by the ability to facilitate the communication in marketing and sales service and it aims at setting up sound relationship with the players of the milieu. The achievement of these objectives through IT seems to directly impact on the quantitative performance. In fact, when the enquiry is efficient, especially when the company is able to find new customers and that the relationship therein is at its best, the IT can easily “boost” sales and help acquire new market shares. Therefore, the higher the level of IT use, the stronger the quantitative performance.

- Influence of qualitative performance (H1b)

<table>
<thead>
<tr>
<th>Information technologies</th>
<th>Correlation ratio</th>
<th>Notification rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Infrastructure</td>
<td>.225</td>
<td>.026</td>
</tr>
<tr>
<td>Level of IT use</td>
<td>.628</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 2: Correlation between IT and qualitative performance

- Here, we see that the qualitative performance is influenced by the IT infrastructure. And this is confirmed by our results, yielding a weak notification rate and a positive correlation ratio. Thus, the company’s commitment towards its partners in the cooperation based on the tools for marketing and sales information sharing, clarifies this relationship. In fact, thanks to IT, the cooperation can be considered as good factors for the improvement of the company’s image and the loyalty of customers.

- With a notification rate lower than 0.05, we can say that there is a relationship between the level of IT use and the qualitative performance. In addition, the positive correlation ratio helps us to make progress and realize that the higher the level of IT use, the better the qualitative sales performance. We can also think that an easy access to marketing information and a active use of marketing database, would lead the company, on the one hand, to get to know the customers better and retain them, and on the other, conquer new clientele.

3.2 The influence of the scanning of sales performance (H2)

We seek to test our hypothesis H2 to prove that marketing scanning could impact on the sales performance based on the works of [Do84] et [SKY94].
The influence of quantitative performance (H2a)

Table 3: Correlation between scanning and quantitative performance

<table>
<thead>
<tr>
<th>Scanning</th>
<th>Correlation ratio</th>
<th>Notification rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scanning intensity</td>
<td>.334</td>
<td>.000</td>
</tr>
<tr>
<td>Information consideration</td>
<td>.390</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 3: Correlation between scanning and quantitative performance

With this crossing of performances and scanning, the weak notification rate and the positive correlation ration mean that the more intense the scanning, the higher the quantitative sales performance. The importance of the available tools for the scanning team and the commitment level of the team regarding sales and marketing seem to dictate the quantitative performance.

With a positive correlation ration and a weak notification rate, we can confirm that the quantitative sales performance is influenced by the consideration of information in the decision. This means that more we consider the information in the marketing decision making process, the better the quantitative performance. So, the collective interpretation of the marketing information helps marketing managers in their decisions. This seems to have improved the turnover and increased the profitability of marketing prospect actions and the market share.

The influence on qualitative performance (H2b)

Table 4: Correlation between scanning and qualitative performance.

<table>
<thead>
<tr>
<th>Scanning</th>
<th>Correlation ratio</th>
<th>Notification rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scanning intensity</td>
<td>.429</td>
<td>.000</td>
</tr>
<tr>
<td>Information consideration</td>
<td>.439</td>
<td>.000</td>
</tr>
</tbody>
</table>

Table 4: Correlation between scanning and qualitative performance.

The scanning intensity seems to have an influence on the qualitative performance: the more intense the scanning, the better the qualitative performance of large companies. The rationale of this relationship is the way of undertaking the scanning activities within the large companies. In fact, a scanning team participating in overseas assignments can have stronger scanning intensity. Moreover, the existence of several networks with good communication in the field of marketing can help improve the image of large companies, entertain loyalty of clientele and thus boost their qualitative performances.
- The consideration of information in the decision-making process seems to have a great influence on the qualitative performance. With a positive correlation ratio and a weak notification rate, the qualitative performance derives from the consideration of information in the decision. So, the collective interpretation of marketing information may act on the treatment of the clientele and improve the image of the company. In other words, the more information is processed in the decision-making process, the better the qualitative sales performance of the company.

4 Conclusion

Overall, beside the crucial and thus strategic feature of the information on markets and as regards to the network management, we feel that there is a link between the information system and the sales performance, which confirms the analysis depicted in this scientific essay that we have studied. These results imply that, in the field of marketing and sales, the setting up of scanning system supported by the network collaboration truly exists in large companies in France. And this is proven by our hypothesis H2 explaining that a collaborative scanning system could influence the sales performance. We notice that the works of [GGH86] and [SCM79] could not help find the effect of marketing information system on performance. Nonetheless, the works of [SVW96] seem to prove that the type of system improves the marketing decisions and furthers the performance of the company. Regarding our hypothesis H1, it was confirmed that the level of IT use impacts on the sales performance of large companies in France. One of the main contributions of this research is then to have tested our hypothesis regarding information system applied to marketing which, to date, has a weak experimental support. Through these results, we can now promote our work by considering, on the one hand, the system characteristics to set up for an increase of performance, and the type of information systems to adopt according to the objectives of each company, on the other. The results of our research will allow marketing and sales managers to step back vis-à-vis the strategic marketing and information system perspective, conveyed by professional essays. In fact, some results have some realistic interest in marketing and in strategic management of information for managers of large companies. It is true that the information system can be positive in terms of sales performance; however, this is far from being systematic as some may induce us in thinking so. Enhancing the scanning intensity based on information sharing and increasing the level of IT use could bring about changes in structure and organization, which the company must have good control of. Therefore, it falls under the professional’s responsibility to make the difference between his legitimate advantages and the risks that he is to take to reach a higher level of sales performance.
Bibliography

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