

LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

**STRATEGIC INFORMATION SYSTEMS IN SMALL AND MEDIUM
ENTERPRISES IN ARGENTINA**

JUAN LUCAS DAPENA FERNANDEZ

AUGUST OF 2001

ABSTRACT

The present paper aims to present the current situation of the Information Systems viewed from a strategic point of view in Small and Medium Enterprises in Cordoba - Argentina.

With this intention a field research was performed and analyzed, to understand what Strategic Information Systems Argentinean's SMEs are using and whether these systems are performing their activities in order to help the companies achieve their goals. To do this, definitions of SIS and SMEs are presented and then compared with the findings in the research field representing almost 500 SMEs, in a sample following statistical principles.

The results are really pessimistic because, as the field research shows, the strategic and the informational dimension, both analyzed in a broad sense are in a weak position. At the same time there are potentially a lot of opportunities to work over the information systems field in these companies. Finally some recommendations are given in order to take full advantage of the possibilities the IS provide to the business.

INDEX

	Page
1. Introduction	2
2. Strategic Information Systems	3
3. Small and Medium Enterprises	4
4. Strategic Information Systems in SMEs	5
5. SMEs in Argentina	6
5.1 The socio-economic and political context	7
5.2 The intra organizational context	8
6. Strategic Information Systems in SMEs in Argentina	
6.1 The Research	9
6.2 The Results	11
6.3 Case Studies	14
6.4 Cluster Cases	
6.4.1 first cluster case study	15
6.4.2 second cluster case study	16
6.5 Analysis of the Information	17
7. The way to begin using Strategic Information Systems	18
8. Conclusion	20
9. References	22
10. Appendix A	24
11. Appendix B	29
12. Appendix C	30

1. Introduction

It has been argued that small and medium enterprises (SMEs) in particular can obtain many advantages by utilizing strategically the Information Systems (IS) and Information Technology (IT), usually referred to as the Strategic Information Systems (SIS). No prudent businesses in the actual economy could afford to ignore such technological advances without affecting their profitability in the long run. In short, the possibility of linking the information systems of the company to the business strategy brings many great advantages (Levy et al. 1999; Earl 1999; Galliers et al. 1999). For example, SIS could be used to closely monitor the reality against the defined business strategy in order to achieve the company's goals. With this idea, the objective of the present paper is brought about, that is, to present a description and possible explanation of the current situation of SIS in SMEs in Argentina.

The forces that motivate this research are my will to define the state of the art of the SIS in Argentina and my longing to understand the current situation of these companies in relation to the IS. I hope then to suggest frameworks to develop these information systems. This research is important for me and may be for the reader for two reasons. Firstly, from a macroeconomic point of view the SMEs in Argentina are the main source of employment (Gonzalez Fraga, 1999), so by helping these companies to grow and to succeed is a way to foster economic development, which is vital because of the current high unemployment rate in Argentina. Secondly, from a microeconomic point of view, it is necessary to show these companies the potentiality of the information systems as a way of helping them to compete on a global basis with competitors that are already using advanced SIS.

A field research of almost 500 SMEs, represented by a sample following the statistical principles, was carried out. There are four clusters clustering the 69 SMEs of the sample. Only in the first two of these clusters the companies have information systems related to the strategy of the firm. All the other cases present the reality that is mainly pessimistic but nevertheless I am of the opinion that gradually and inevitably there will be a lot of opportunities for researchers and professionals in the information systems field.

The theoretical concepts utilized in this research are guided mainly by the contextualist idea of Pettigrew (1985) in the sense that it is necessary to understand the context where the SMEs performed their activities in order to understand why they perform their activities in the way they do. The strategic hypotheses utilized in the research are guided by the same principle which is the reason why the present research is going to be based on ideas such as five forces competence, value chain and information intensity matrix (Porter, 1980,1985) that have more than 15 years of presence in the academic and professional fields. On the other hand, some newer ideas such as knowledge management (Alavi, M. and Leidner, D. 1998; Ciborra C. and Andreu R. 2000), virtual organization (Flaig, L. 1993; Davidow W. and Malone, M. 1992), internet strategies (Porter M. 2001; Poon, S. 2000) and so on are not applicable because they are not appropriate for this context as the results of this research will reveal. The same reasoning is utilized in relation to the concept of SIS. For the present research this concept is understood as the

utilization of information systems to support the business strategy, which is named as the alignment problem by Earl (1999) among others, and recognized as one of the perspectives in Henderson and Venkatram's model (1993).

Following these principles the present paper first gives a description of what is understood by SIS and SMEs and the particular characteristics of SIS for the SMEs in order to define the theoretical basis for this research. After that and following Petigrew, the SMEs in Argentina will be defined and the descriptions of the socio-economical and political situations and the intra-organizational level will be presented. The next part is SIS in SMEs in Argentina, where we enter into the heart of the understanding and analysis of the SMEs and the deployment of the information system there. This is done by presenting the research, the results and the analysis of the information gathered. The Argentinean cultural background will be observed along the analysis. In order to propose a course of action to resolve the present lack of utilization of technological information system in the SMEs in Argentina, some framework concepts and some tools that belong to different frameworks of analysis of information systems in SMEs are presented. This research ends with a conclusion relating to the main ideas of the investigation.

2. Strategic Information Systems

According to Levy et al (1999):

“Strategic information Systems encapsulate the notion that linking information systems to business strategy may yield significant competitive advantage, potentially transform the firm and perhaps the industry, and should be an active concern of top management”.

In the above quotation it is assumed that the information systems will be strategic per se because they are going to support the business strategy of the firm (Figure 1). This is going to allow the firm to “yield significant competitive advantage, potentially transform the firm and perhaps the industry” (Levy et al. 1999). Earl (1999) identifies this activity as the alignment problem, questioning what IS and what IT is necessary to support the business strategy. Earl also focuses on two more questions. Firstly, what sort of different business opportunities could be offered by the usage of IS and IT and secondly, if every business is an information business, it follows that the business must think in only one strategy that links the information strategy and the business strategy. In this case he is speaking about an integrated information business strategy.

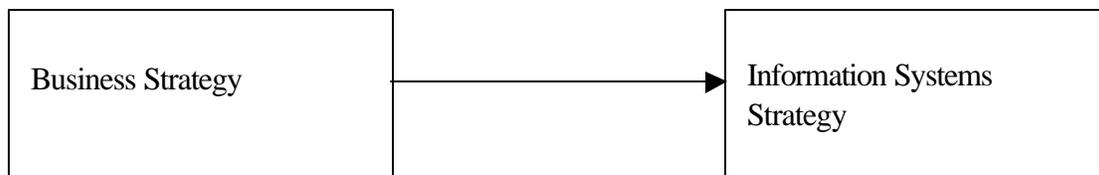


Figure 1

There are different concepts of the role of the information systems in a company in relation with the information strategy making process. Levy et al. explored the question of how to align the information systems with the business strategy and this concept will be explored too in the investigation. But to speak about strategic information systems, first it is necessary to give a brief explanation of what strategies SMEs can adopt to succeed in the market. According to Porter (1979) a company has three options of generic strategies, they are cost leadership, differentiation and focus (niche). With respect to the cost leadership, a company can produce at a much lower cost than its competitor and therefore it focuses all its energies in lowering its cost to be the company with the lowest price in the market. As with differentiation, a company offers a different mixture of product features such as the service and quality so as to aim to differentiate its products and services from the rest of the competitors at the market. The focus strategy is when a company specializes its products and services to attend only one niche of a market by satisfying its necessities in an adequate way. Generally the companies decide its strategies according to these alternatives and their definition of market and their targeted customers. Once they decide the strategy to be adopted, the information systems can help the company to implement and execute its decided strategy and to enhance the performances of its activities.

To think strategically about IS following this framework is to decide which information systems is going to provide the best information to give the best support to the business strategy of the firm. The ideal IS will provide the necessary information to evaluate not only the actual performance of the company but also the different competitive forces that shape the industry. Following Porter (1985) the competitive forces that are necessary to be analyzed in order to understand the industry where the company is competing are: the power of buyers, the power of suppliers, the threat of new entrants, the threat of substitute products and the rivalry among competitors. Finally the advances in IT and consequently in IS can be utilized by the company to create competitive advantage by lowering costs, by enhancing differentiation or by changing the competitive scope of the company (Porter, 1985).

In conclusion, the role of information systems from a strategic point of view is to provide information to enable and support the business strategy of the company. The support comes in a various forms namely, the strategy maker in the company will be provided with information on the different competitive forces of the industry and the relevant information to evaluate the actual performance of the company according to the proposed strategy. With these valuable information, the company could then try and create competitive advantage by lowering costs, by enhancing differentiation or by changing the competitive scope of the company.

3. Small and Medium Enterprises

Although there are different definitions of SMEs the amount of employees is thought to be the more appropriate measure to define them. Under this measurement the European Community suggest that small firms are those with 10-99 employees and the medium

sized enterprises are those with 100-499 employees (Levy and Powell. 2000). Others characteristics of SME are that they are generally family owned businesses (Levy, Powell, Galliers. 1999) and they have little power to influence the market price and are unable to erect barriers to entry to the industry (Levy & Powell.1997). For this research the SMEs are defined as the companies with more than 10 and less than 100 employees. To define in this way of Cordoba's Province decrees number 1917/99 (23/08/99) and 2341/99 (18/11/99) were taken into account. These decrees have the foundation in the law number 24.467 of the Argentinean Republic.

According to Churchill and Lewis (1983) there are different stages of growth in the small business. The business can stay in a stage for different length of time according to the owners' activities and other several reasons. These authors classify the stages as Existence, Survival, Success, Take-off and Resource maturity. The companies are going to have different sizes according to the stage where they are in. They could stay in one stage indefinitely or they could pass to another stage if they met certain conditions. The main point of this classification is to focus the different stages of growth and to highlight the different features of the company.

These features are:

- The management style, it could be direct supervision, supervised supervision, functional, divisional and finally line and staff.
- The organization structure could be at any point along a continuum between the centralized and the decentralized ends.
- The extent of formal systems could be minimal to nonexistent, minimal, basic, developing, maturing or extensive.
- The major strategy, that could be existence, survival, maintaining profitable status quo, gets resources to growth and return of investment.
- Finally the relationship between the owner and the business is going to vary according the degree of involvement of the owner at the business ranging from the owner *is* the business to the owner being totally separated from the business.

For the present analysis it is important to bear all these features in mind because SMEs and the differences between them (stages) will be defined. Of course, as in any classification, some enterprises could be in general terms operating at one stage but with some features of other stages. One example is the degree of involvement of the owner in the company. According to the theory (ibid 1983), the owner's involvement in the business is going to be less when the company grows as a result of hiring professional management to run the business. But there are a lot of examples of companies at the final stage (resource maturity) with the owner running the business.

4. Strategic Information Systems in SMEs

At this moment a relationship between the strategic information systems and the SMEs can be made in order to understand the main characteristics that these types of businesses have in particular.

On the one hand SIS is defined by linking information systems to business strategy so as to obtain several advantages of information that is directly related to strategic topics in the organization.

On the other hand SMEs are defined as the ones with certain characteristics related to the management style, the organization structure, the extent of formal systems, the major strategy and finally the relationship between the owner and the business.

The specific characteristics of the SMEs with respect to strategic information systems are related to Environmental specificity, Organizational specificity, Decisional specificity, Psycho-sociological specificity and finally Information systems specificity according to Blili and Raymond (1993). The environmental specificity is related to the uncertainty they face in the technological environment and the vulnerability of their competitiveness as a consequence of their financial weaknesses, limited capacity of production, non-professional or semi-professional management and narrow scope of products or services among other factors. The organizational specificity is related to their informal structure, mainly characterized by the dependency on the owner for all the decisions at the company, the informal communication channels and the poor human and financial resources. The decisional specificity is focused on the short-term period and is more reactive rather than proactive. The decisional process is more intuitive, based on guesswork and less dependent on information and formal decision models. The Psycho-sociological specificity is related to the dominant role of the owner in the company, the centralized decision-making process where all the decisions must pass under his/her authorization. The organization culture is the shadow of the owner and his/her personality will be the characteristic features of a specific company. The Information Systems specificity is related to the role of the information systems within the company. This role is mainly transaction-oriented, accounting related and the company normally does not have enough experience to plan, organize and direct the use of the information resources.

All these aspects are related to the specific features of the SMEs and they highlight which features must be taken into account when analyzing the IS in the SMEs.

Finally it is important to determine if the SMEs have strategic information systems or not. According to different authors (Blili and Raymond,1993; Levy and Powell, 2000; Levy et al, 1999) it is important to highlight the transaction-processed and short-term view of the information systems in these companies. The point is to extract the potentiality of the information systems as a strategic resource and the necessity of adopting a long term vision when analyzing the advantages and disadvantages of implementing information systems that will allow the company to use it as a strategic resource (Blili and Raymond, 1993).

5. SMEs in Argentina

After the definition of SMEs and the role of the information systems from a strategic point of view at these businesses, it is necessary to define the context that these SMEs with their IS are operating in.

According to Pettigrew (1985) “one of the core requirements of a contextualist analysis is the requirement to understand the emergent, situational, and wholistic features of an organism or a process in its context, rather than to divide the world into limited sets of dependent and independent variables isolated from their context”. In other words, it is not possible to make a good analysis of a certain situation without analyzing the context in which the subject matter performed its activities. Following the same author, to understand the context it is necessary to analyze features not only at an intra organizational (inner-context) level but also at a socio-economical and political (outer-context) level.

5.1 The socio-economic and political context

The political and socio-economical environment in Argentina at this moment is very unusual. There are some particular characteristics that are necessary to comprehend in order to perform a good analysis of the current situation of the SIS in Argentinean's SMEs.

It is important to highlight, at the political level, the environmental uncertainty that is present at this moment in Argentina as a consequence of the weakness of the coalition in power. This weakness is a result of the disassembled government coalition in year 2000 as a consequence of different interests among the two political parties that conform this coalition (Radical and Frepaso parties). The present situation in Argentina is such that there is a high political uncertainty about the capability of the government to manage the country.

From an economic point of view it is not possible to begin an analysis without taking into account the economic situation. There is a recession now, which existed in this country since 4 years ago. The Argentinean currency however is really strong in comparison with the European currencies and the rest of Latin America currencies. This is due to the Argentinean peso being pegged to the United States' dollar to combat the endemic inflation that affected Argentina for more than 30 years. This strength inevitably brought a price disadvantage at the moment in selling Argentinean SMEs' products to the Latin American neighbors (mainly Brazil that is the Mercosur partner –the common south economic market composed by Argentina, Brasil, Paraguay and Uruguay). The consequence of this currency disparity is a drop in the sales of Argentinean SMEs' products to the other countries. The actual recession came after a long history of inflation problems in Argentina (C.E.P., 2000). The long period of economic inflation weakens the value of Argentinean currency along the years (since 1960s to the beginning of the 1990s). Until the beginning of the 1990s (1991) the Argentinean economy was generally close from the rest of the world with many protective measures to defend the national industry and economy against the foreign competition (Gonzalez Fraga, 1999). This brought about inefficiency at the production of goods and services in the private economic sector simply because these companies were protected from the external competition. After the former president Mr. Menem came into the power (1989) he began a set of transformations (since 1991 with Mr. Cavallo as Economy Minister) which

opened the Argentinean economy to the external competition. This produced a tremendous pressure in the SMEs to convert their mainly inefficiency production process to compete with the “new entrants” (external competition). This pressure pushed the SMEs in downsizing processes, reengineering processes, lay off, automation of existing process, technological investments and so on in order to adjust former “efficient process” (under a close economy) in “really efficient” process (C.E.P., 2000).

Finally it is necessary to highlight another feature of the present Argentinean situation that SMEs faces, that is the high cost of the labor in Argentina (Gonzalez Fraga, 1999). The high cost of labor does not mean that the SMEs pay high salaries but that there are a lot of regulation procedures and costs implication in order to hire or fire an employee. This situation produces at the SMEs an employee’s aversion attitude that overworked the current employees or postpones production increments and decreases one of the main advantages of the SMEs that is the flexibility in production processes related with labor. Finally, in addition to the factors enumerated above, it is necessary to add that, at the present, there is an uncertainty about the capacity of Argentina to pay the service of the external debts.

So, the present situation in Argentina can be described as a country with high economic uncertainty; has a relatively strong currency in relation with its neighbors; incredible high interest rates as a consequences of the high level of external debts and the uncertainty of the capacity of the country to deal with those debts services; high labor costs and pessimistic forecast for the future short-term economic situation.

5.2 The intra organizational context

At present there is approximately 1.000.000 of SMEs (Gonzalez Fraga, 1999) in Argentina. The important variables to define SMEs in Argentina are the number of employees and the level of sales. The Small enterprises represent 96% of the total amount of the Argentinean enterprises and they create 53% of the Argentinean work force. The medium enterprises on the other hand represent 3% of the total amount of Argentinean enterprises and they create 27% of the Argentinean employment (Gonzalez Fraga, 1999). The main problem faced by the Argentinean SMEs is how to obtain the necessary cash to finance the growth and development (Gonzalez Fraga, 1999). SMEs are an important component of the economy in Argentina and it is the responsibility of the public administration to foster the development of them in order to fight the unemployment (at the rate of 16% - CEP, 2000) and allow the economy to grow.

The description presented at the earlier part in this paper of SMEs correspond with the features of the Argentinean SMEs. Some specific obstacles faced by the Argentinean SMEs are as follows:

1. The level of uncertainty faced by the Argentinean SMEs is higher than the one described in general for SMEs as a consequence of the great uncertainty at a macroeconomic and political level. This situation is problematic because there is

- no such a thing as a predicted future scenario or the existence of at least certain future trends to allow the SMEs to plan the strategy in a long-term context.
2. The value of the local currency in relation to neighbors' currencies is such that the production costs is higher for similar products.
 3. The difficulty in obtaining cash to finance the growth as a consequence of really incredible high interest rates for bank loans and the non-existence of a stock market for SMEs (Gonzalez Fraga, 1999).
 4. The inflexibility faced by the SMEs to hire and fire employees as a consequence of the strict regulation procedures and high costs of compensation in discharging employees. This situation impedes a fast response to market variations and the consequent loss of market share or important financial resources in compensation fees.
 5. The risk-aversion behavior of the SMEs' owners as a consequence of all the items mentioned above.

There is a big difference in the environment faced by companies according to the context where they perform their activities, and in the Argentinean case, it is a very good example of Pettigrew's contextualist approach. The description of the situation faced by the Argentinean SMEs shows that it is not the same environment faced by companies in other countries.

6. Strategic Information Systems in SMEs in Argentina

6.1 The Research

The field research was performed during the months of March and April of year 2000 in the City of Cordoba - Cordoba Province-Argentina (Dapena, 2000 –Appendix A). This province is a production center, second in importance in Argentina after Buenos Aires. The population under analysis is defined as all the SMEs registered in the Cordoba Industrial Registry, belonging to a specific industrial sector and with more than 10 and less than 100 employees. This gave a population of 493 SMEs belonging to approximately 80 industrial sectors of the City of Cordoba. The size of the sample was 76 SMEs (Appendix C) with a level of confidence of 95% and a maximum error degree of 10,3%. In this sample 7 SMEs did not answer, thus the final tested sample was 69 SMEs (Table 1). This produced a modification of 0,7% and raised the maximum error degree to 11%. The technique utilized for obtaining information was interviews with the owners or with the person in charge at the SME and questionnaire with close and open questions plus any additional information the owner considered important (Appendix B). Each interview lasted at least 30 minutes.

Companies	Amount of companies of the sample	
Up to 20 employees	35	51%
From 21 to 50 employees	19	27%
More than 51 employees	15	22%
Total	69	100%

The statistical technique known as Cluster Analysis (Multivariable analysis – Manly, B. 1988) was utilized to define homogeneous groups of SMEs according to a set of strategic and informational variables. The results were four clusters with specific strategic and informational characteristics. In each of these clusters the most representative SMEs (measured in relation with the distance from the theoretical center of the cluster) was analyzed in order to define what kind of information systems it has and if it can be called strategic (Appendix A). This analysis was performed by an additional interview with opening questions during March 2001.

The information gathered belongs to two general dimensions (Castellano, 1998). They are:

- The Strategic Dimension
- The Informational Dimension

The Strategic Dimension (Figure 2) was analyzed with three main variables in two sub-dimensions that are short term and long term. These variables were:

- 1) The definition of objectives/goals for the short and long term. This is the key factor to define the strategy of the SMEs. If the company does not know its objectives, it will be difficult to define any kind of strategy and to provide strategic information on whether the defined objectives are accomplished or not.
- 2) The process of planning the way in which the objectives will be achieved. If the company has objectives but it does not plan how it will reach those objectives it is going to be difficult for the company to succeed.
- 3) The evaluation of the reality with the defined objectives is the last variable to be analyzed. It is an important variable, because even if the short and long term objectives are defined and a plan is mapped out to accomplish those objectives, without an evaluation the real performance of the company whether in accordance with what was planned will not be known. One of the key functions of the strategic information systems in a company is to provide a feedback in relation to the way in which the business is performing its strategy.

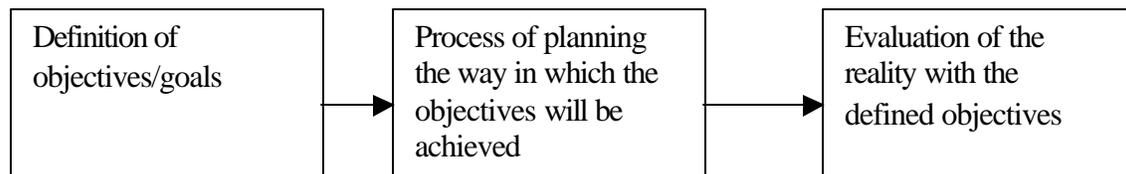


Figure 2

The Informational Dimension (Figure 3) was analyzed according to two variables in two sub-dimensions that are short term and long term. These variables were:

- 1) The making of budget for the short and long term. This is one of the most valuable information tools that a company could have and can be defined as the numerical expression of the plans. It is an instrument that allows the company to monitor what was planned with the reality by the translation of the plans in numbers and the comparison of these planned numbers with the real ones.
- 2) The making of cash flow on a monthly and annual basis defines the cash needs or the cash surplus that the company has according to what was budgeted and the financial criteria of the company. This tool is really important for the SMEs because one of the main problems they face is how to manage the financial resources in the best way to allow growth and development of the company.

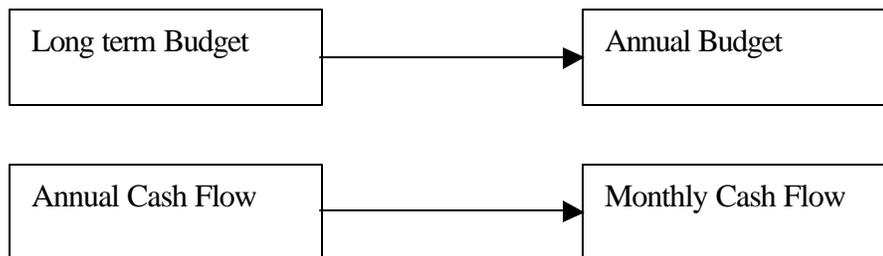


Figure 3

The research was performed according to these variables in order to understand the current situation of the IS and SMEs in Argentina and if they can be called strategic.

6.2 The Results

The results obtained as a result of the field research were as follows:

The Strategic Dimension

- Short-term objectives
Of all the SMEs analyzed, 63 SMEs (91%) have defined their short-term objectives while 6 (9%) did not have clear objectives for the present year (2000)
- Long-term objectives
Of all the SMEs analyzed, 33 SMEs (48%) have defined their long-term objectives while 36 (52%) did not define any objectives for the next 3-5 years.
- Planning of the short-term objectives
Of all the SMEs analyzed, 54 SMEs (78%) have planned their short-term objectives while 15 (22%) did not plan any objectives for the present year (2000).
- Planning of the long-term objectives

Of all the SMEs analyzed, 13 SMEs (19%) have planned their long-term objectives while 56 (81%) did not plan any objectives for the next 3-5 years.

- Evaluation of the short-term objectives

Of all the SMEs analyzed, 49 SMEs (71%) had a periodical/annual evaluation of the short-term objectives while 20 (29%) did not.

- Evaluation of the long-term objectives

Of all the SMEs analyzed, 3 SMEs (4%) had an annual evaluation of the long-term objectives while 66 (96%) did not.

The Informational Dimension

- Annual Budget

Of all the SMEs analyzed, 35 SMEs (51%) had an annual budget while 34 (49%) did not have a budget for the present year (2000).

- Tri-annual Budget

Of all the SMEs analyzed, 6 SMEs (9%) had a defined budget for the next three years while 63 (91%) did not.

- Monthly Cash flow

Of all the SMEs analyzed, 57 SMEs (83%) had a cash flow to determine the monthly cash needs or surplus while 12 (17%) did not.

- Annual Cash flow

Of all the SMEs analyzed, 21 SMEs (30%) had a cash flow to determine the annual cash needs or surplus while 48 (70%) did not.

The interpretation of these results shows a pessimistic reality of the SMEs in Cordoba, Argentina. This pessimism is a consequent of serious problems from both a strategic point of view as well as from an informational point of view.

From the results it can be observed that 6 companies did not define their short-term objectives. This means that they had been operating without established objectives for the current year and without a clear goal of what they want to achieve at the end of that year. When the results were collected, it was at the end of the third or the fourth month (March – April) of the year and these companies were running without any clear goals. In the long-term horizon the situation is more discouraging because in this case more than half of the sample (36 companies, 52%) were running without long-term objectives and this is a clear example of how the context influences the way the management perform their job in SMEs, 36 out of 69 companies that were analyzed have not defined what they want for the next 3-5 years. In the case of planning their short-term objectives 54 companies (78%) planned how they will perform to achieve the objectives they have. On the other hand 15 companies (22%) do not know how they are going to reach their objectives of this year (in the case they have objectives). This shows that many companies do not engage in planning. They merely carry out day to day operations and the managers do not think strategically about what objectives they want to reach, or, in a “better” situation, they know which goals the company must reach but they did not plan what the company

must do to reach those objectives. The long-term planning is even more depressing because only 13 companies (19%) had planned what they must do to achieve the long-term objectives. Of the 33 companies that have long-term objectives there are 20 that do not know how they will perform to reach those goals, which is similar to the companies that have short-term objectives but did not plan what activities they must undertake to achieve them. The evaluation variables are disappointing too because in the short-term only 49 companies (71%) evaluate their plans against the reality to determine corrections or confirm the way in which the company is performing. Worst still, in the long-term horizon only 3 companies make evaluation of the company's performance against what was planned. Only 4% of the sample does have long-term evaluation to evaluate how things are going and to know if it is necessary to do any kind of adjustment to their plans or to the way activities have been performed.

With respect to the informational variables, half of the companies in the sample did not have an annual budget to guide their activities and to analyze their performance in numerical terms. If it is assumed that the budget is "the numerical expression of the plans" (Koontz and O'Donnell, 1968), 34 companies in the research did not have an annual budget for the current year, which means they are working without formal information tools to monitor their activities in the firm. In the long-term (3 years) only 6 companies prepared a budget for this period of time. It is noteworthy that six companies out of a total of 69 is really a small proportion of companies (9%) that contemplate its' future expressed in numerical terms in its plans. Finally the last informational instrument under the analysis is the cash flow which is evaluated in the short-term and long-term period. In the short-term (month) 57 companies (83 %) have this cash flow for the financial management of the company while 12 (17%) companies do not have it. In these cases where the companies do not have at least monthly cash flow, the owners must have a mental one because otherwise it will be really difficult to manage the firm. In the long term the situation is worse because only 21 companies have annual cash flow while the rest (48 companies, 70%) do not manage their company with this financial cash flow annually.

The results of the strategic dimension of this research are pessimistic because they show a situation that is really bleak. The most pessimistic part of the results is in relation with the long-term analysis. The reason is probably because the Argentinean SMEs' businessmen are not used to make long term plans probably due to the long inflationary experience that they faced during their lives. If SIS is implemented, the companies must have at least a strategy otherwise the information that the managers required will most probably be not strategic. If in the short-term the firms do not have objectives and they do not plan how to manage the firm to reach those goals as well as not evaluating the performance of the firm under those objectives and plans, it is almost impossible to provide strategic information. This because the firm does not have a strategy to provide information about . The long-term situation will be worse because there is no predisposition to contemplate the long-term in the strategic field.

The information systems that the managers use for managing their companies present a negative perspective too. Many SMEs operate without a simple spreadsheet about the

incomes and expenses of their day-to-day activities let alone a simple budget. It is going to be difficult to introduce SIS if the companies do not even have the simplest numerical tools that is used for the most broad management level.

The advantages of IS and IT for the SMEs are many (Levy et al. 1999; Earl 1999; Galliers et al. 1999), but these companies must accomplish some minimum requisites prior to the implementation of IS and IT. It does not make sense to speak about Management Information Systems, Decision Support Systems, Inter-organizational Systems and so on if the minimum management information tools are not being used in the companies.

6.3 Case Studies

After an analysis of the strategic keys and informational variables, it is now appropriate to analyze deeper into the representative cases of the different clusters.

The four SMEs that represent each of the clusters are the following:

- The first cluster has six companies and it is characterized by two key variables, namely:
 1. They prepare three-year period budget
 2. They prepare cash flow on an annual basis
- The second cluster has three companies and it is characterized by one key variable that is:
 1. They evaluate periodically the long-term objectives
- The third cluster has forty-three companies and it is characterized by four key variables, namely:
 1. They have short-term goal
 2. They plan how to achieve those short-term goals
 3. They evaluate their actual performance according to their short-term objectives
 4. They do not prepare three-year period budget
- The fourth cluster has seventeen companies and it is characterized by six key variables, namely:
 1. They do not have short-term objectives
 2. They do not plan how to achieve those short-term goals
 3. They do not evaluate their actual performance according to their short-term objectives
 4. They do not have long-term objectives
 5. They do not prepare cash flow on a monthly basis
 6. They do not prepare cash flow on an annual basis

There are four different clusters with companies that were clustered according to homogeneous characteristics. These characteristics, representing each of the clusters are the ones mentioned above.

The first and second clusters deserve deeper analysis because they are using information tools on a long-term basis. For example the companies of the first cluster prepare three-year period budget. This means that they have short and long term objectives

(considering that the short-term objectives are part of the long-term objectives). They also planned how to achieve those objectives and they expressed their plans in numerical terms. Still in the same cluster they prepare and use cash flow on an annual basis. This implies that they prepare cash flow in a shorter term (monthly) and they have monitored their incomes and expenses for the whole year.

In the companies of the second cluster there is only one key variable representing the group, namely these three companies make evaluation of their long-term objectives. They also have short-term (considering that the short-term objectives are part of the long-term objectives) objectives. Their evaluations examine their actual performance according to what was defined and planned for the next 3-5 years.

The companies that belong to the third and fourth clusters deserve less attention because they are characterized by variables that make us realize that they are not strategically prepared to use SIS. This point is supported by the fact that in the third cluster the long-term horizon does not exist because they do not have long-term variables characterizing the group. In the fourth cluster, they deserve even lesser attention because these 17 companies not only did not contemplate long-term horizon but they also did not define any short-term objectives. Hence there is no possibility of planning or evaluating non-existence objectives. With respect to informational dimension they do not prepare monthly nor annual cash flows.

Unfortunately this sample indeed represent the reality faced by the SMEs in Cordoba City-Argentina. The reality is that in the sample of 69 companies 60 of them do not meet the basic requirements to implement strategic information systems. The other 9 SMEs met the basic requirement and so it is necessary for a further analysis.

6.4 Cluster Cases

6.4.1 First Cluster case study

The company that represents this cluster is in the business of construction of electrical machinery for big companies. They have 80 employees and short-term objectives. They plan how to achieve these goals and they make a monthly evaluation of their actual performance in comparison with their set objectives. The company use budgets annually and in a three years horizon framework. Furthermore, they use weekly, monthly and annual cash flows. Their key performance measurements are sales, production, productivity and defective production rate. They met the international quality standard known as ISO 9002.

The structure of the company is functional with decentralized decision-making processes. This is adequately linked by the information systems of the company. They have production information systems and management information systems. Hence they have maturing information systems (Churchill & Lewis, 1983). The main clients of this company are big companies. Hence they are able to monitor the sales and marketing aspects very closely. The company is already using SIS in order to certify quality

standards (ISO 9002) and to meet the requirements of their big customers. According to the general manager of the company, the main difficulty the company faces from an information systems respect is to obtain a more detailed economic valuation of the defective production in order to take corrective actions.

There is a separation between the owner and the company because the company belongs to an economic group and not to a specific physical owner. A point to mention here is that the general manager of the company is from Spain and it is an international group of companies that owns this company. Hence, the management and information know-how was implemented by the pressure and with the support of the international group when they acquired the company (according to the general manager). Finally, the international group can classify their major strategy of the SME as return of investment.

This company is well prepared and it has a link between the IS and the business strategy. This situation is an exceptional one and it reflects the trend of the very recent years, that is the investment of international groups in strategic medium sized companies. However, this case is not the generality of the sample in the management and IS aspects. (This group has only six companies - 9% of the sample)

6.4.2 Second Cluster case study

The company that represents this cluster is dedicated to the production and sales of still and sparkling water as well as water tanks with drinking water. They have 33 employees and have set short and long-term objectives. They planned how to achieve these goals and they make monthly evaluation of their real actual performance against their annual objectives and they also evaluate annually their long-term objectives. The company uses budgets on an annual basis and cash flows monthly and annually. Their key performance measurements are sales, costs and financial needs.

They have production information systems and they mainly use cash flows to manage the company. Their clients are family related, private individuals and public institutions. The main difficulty the company faces from an information system respect is to obtain information related to the market. For example what is the market share of the company and their competitors, what are the growth rates, who are the potential clients and so on. The IS can be classified in this case as basic because they are not linked. For example the production systems responds to the machinery of the company and it is isolated from the rest of the IS. They do not have a basic IS structure and management decisions are taken basically from spreadsheets elaborated by the administrative employees and not as a result of MIS or DSS packages.

The structure of the company is centrally supervised. The owners are assessing every aspect of the company. The decision-making depends on the owners. So there is a strong entail between the owners and the company.

According to the general manager (one of the owners in this company) the company has very aggressive growth plans, which is the main reason why they needed market information. According to Churchill and Lewis the strategy of a company can be

classified as survival rather than accumulating resources for growth. The company is family owned and the general manager is an accountant from Cordoba-Argentina.

This last case is more representative of what a SMEs in Argentina looks like. The only unusual feature is that the company has a professional manager and that the company contemplates long term vision in its strategic planning. Maybe this is the reason why this cluster has only three companies (4% of the sample).

6.5 Analysis of the Information

The first point to take into account, as one of the most important, is the absence of the long-term vision in the majority of the companies. This point sometimes is not separated from the experience of the managers of the SMEs. However, Keen (1981) reminded us and argues that, “ [it] is not that managers are stupid or information systems is irrelevant but that decision making is multifaceted, emotive, conservative and only partially cognitive”. It is possible to see the truth of this argument in the SMEs’ Argentinean managers because it is difficult for them to think of a long-term strategy when they have had experienced the past and the present of the Argentinean downturn economic situation. As mentioned earlier, Argentina has experienced a long period of inflation for more than 30 years. Hence, it will not be easy to change the mentality of these managers and owners to think of, let say, a five years period of stability. Furthermore, managers and owners may resist to changing their way of running their business because even if there may be some optimistic forecast of some years of stability, such stability may not last long. For example, Argentina may enjoy 5 years of economic stability and then the next 4 years, she goes into a really deep economic recession. Such pessimism on the Argentinean economic status is very real. For instance, there was one owner interviewed in this research said that during inflation moments he viewed himself as making money simply by looking at just the inventory levels –the bigger the inventory, the greater the profitability!

After this inflation period the new open economy (1991) policy emphasized on the reduction of inventories and maximization the just in time processes as a way of optimizing the financial circuit of the company, reducing inventory costs and improving the production efficiencies. This was a change from the previous policy implemented during the inflation period whereby the star of the company was the financial manager. In this “new competitive age” with external competition plus domestic competition the stars of the company are the production manager and the sales manager (the same person may be both production and sales managers because we are dealing with SMEs). Since 1996 Argentina entered into an economic recession and the policy changed to downsizing, restructuring and preparing the firm in financial and economic terms to pass the “winter”. The fact is that the “winter” is still in Argentina (2001) and the prospects of economic growth are still very small.

Another point worth noting is that following Churchill and Lewis (1983) the “owner is the business” in the majority of the SMEs analyzed in Argentina, and they do not have professional education as managers. The management education they have was acquired

through experience in managing the SMEs as time went by. So the decision-making process in the Argentinean environment is even more multifaceted, emotive and conservative than in the case Keen had envisaged.

Moving on to the IS aspect, there is approximately 87 % of companies in the sample whereby their accounting function is performed by external professionals that usually define the requirements of information (mainly for tax and regulation purposes) for the company and they do not give additional information services. This is different from the SMEs' characteristics defined by Blili and Raymond (1993) because the information systems are not subordinated to the accounting function. In the majority of the cases this accounting function is passed over to the external accountants mainly to attend tax and regulation procedures (Dapena, 2000). In the case of the SMEs in Argentina it is the owners or managers who define the systems and the needs of information. The decisional making process, in the majority of the cases is based on two or three key information, namely the amount of sales, costs and financial needs. With these information the majority of the SMEs managers can run the company according to their way.

The rudimentary information systems the companies have are fully oriented to day-to-day operation in a transaction processing sense. Unfortunately the main focus of the management activities of the owners is the financial aspect of the business (obtain the necessary cash to run the business) and with this preoccupation absorbing the majority of the owners' energies, it is difficult for them to have time to think strategically. In these circumstances, it is really difficult to try and broaden the amount of information they considered are necessary for management. It is a process of showing the utility of the information as a step to try to incorporate more information in their decision making frame. The information we are trying to add here is cognitive information and it is only one of Keen's decision-making components.

The IS tools are already available in the context under analysis but the SMEs owners do not have as a priority of implementing these tools. The reason is mainly because of the decision-making process described above and the lack of financial resources to invest in tools which in their opinion are not necessary. The key objective of Argentinean's SMEs is survival as many authors already argue (Churchill & Lewis, 1983; Blili & Raymond, 1993; Levy & Powell 2000 among others) as these SMEs are presently facing uncertainty and adverse environment.

7. The way to begin using Strategic Information Systems

At this stage it is appropriate to discuss as to how to help the Argentinean SMEs so that they can take advantage of the potentialities of IS. In order to do this the development frameworks proposed by Levy et al.(1999) can be used as a means to introduce the SIS in the companies. The reason for using these frameworks is because these SMEs generally have not used SIS. The best way to introduce SIS is by showing the importance and possibilities that IS could provide to the companies if they use them strategically. This

study divides the different frameworks according to different strategic analysis that can be realized on the SMEs. The frameworks are (Levy et al., 2000):

- Awareness frameworks that indicate how IT can be used for strategic advantage, the purpose is to encourage creative thinking and questioning and this type of frameworks are mainly educational.
- Opportunity frameworks that direct towards enabling the individual organization to acquire suitable strategic opportunities by using IS. It is oriented to the analysis of the immediate competitive environment, the information flows that is required to carry out the business activities, and the technological opportunities that are available.
- Positioning frameworks that considers the importance of the existing IS to the business. They are intended to help the managers to plan for the future development of IS after a good understanding of the current situation.

The authors conclude after considering the European business context and the complex circumstances faced by the manufacturing SMEs that there are some strategic tools that are more useful for that business context. Following the same methodology of analysis it is possible to consider the usefulness of the strategic tools for the Argentinean SMEs.

The awareness frameworks are necessary for the SMEs because the first step to SIS usage must begin with the thought of how IT can be used in the company and the consideration of where the industry sector belongs in order to create strategic advantage. The purpose of these frameworks as it is explained above is educational. They foster creative thinking and question in terms of IT and IS. Among the different tools in these frameworks that can be useful are mainly: the strategic opportunities framework (Benjamin et al., 1984) and the information intensity matrix (Porter and Millar, 1985). With these tools the SMEs will begin to understand how the information systems can be used in a strategic way and for the first time they could apply some information systems concepts to their companies.

Within the opportunity frameworks, the value chain concept (Porter and Millar, 1985) and the five forces model (Porter, 1980) are the key concepts for the Argentinean reality. The SMEs must re-think strategically of the way they are performing at the company. This is because the strategic methodology utilized in the majority of the cases is still not enough to face the competitive environment. The proposal here is related to strategic concepts that have been around for more than 15 years. There is nothing new in the concepts proposed here. What is new is that the SMEs must apply these concepts, which they never did. These strategic concepts help the SMEs to understand the environment and the position of their companies in this environment as well as to how they can succeed by utilizing the strategic tools that IS and IT could potentially provide for creating and sustaining competitive advantages.

On the other hand, the positioning frameworks are not so useful for the Argentinean context because in the majority of the cases of the sample, the IS is not part of the SMEs' formal structures. In cases where the companies have some kind of information systems it

is dependent on the external agencies. In the research the IS that companies have are mainly based in the information the SMEs' owners' and managers' needs and generally are related to less than five key measures (such as sales, costs and financial needs). With this present situation it is difficult to speak about positioning frameworks because there is no existing IS in the majority of the companies.

There must be a pre-requisite step prior to the implementation and utilization of the proposed frameworks in the SMEs. The pre-requisite is that the SMEs should understand the competitive environment. It is suggested that the SMEs should then use the awareness frameworks in order to understand (and learn) how they can use the IS to improve the performance of their companies and support the proposed strategies. The strategic opportunities proposed by Benjamin et al. (1984) (mainly focuses at the internal operations as the first step and only then focuses at the competitive-market) can be very useful at this stage. The information intensity matrix will be very useful too for understanding the information component of the products of the SMEs and to understand the information intensity of the value chain. At this point the opportunity frameworks enter into action, whereby the value chain and the different competitive forces faced by the SMEs will be analyzed. If the SMEs can be convinced and induced to apply these strategic concepts things will be totally different from the current situation. It is feasible to implement these tools on Argentinean's SMEs but, according to the general manager and to the owner of the companies that represent clusters 1 and 2, it is not the moment to do it. This impossibility is due to the highly uncertainty present at this moment in Argentina (section 5). Finally, the positioning frameworks are not useful in the SMEs Argentinean environment because of the reason stated above.

8. Conclusion

In this paper the current state of the art of the information systems in the SMEs in Argentina was analyzed. The main objective was to understand how SMEs are using SIS or, in a worse case if the SMEs are using SIS in the first place.

The results are really pessimistic but at the same time there are potentially a lot of opportunities. The results are really pessimistic because, as the field research shows, the strategic and the informational dimension, both analyzed in a broad sense are in a weak position. In the strategic dimension this is mainly because the SMEs owners and managers do not contemplate the long-term horizon when defining the goals of the companies. In many cases they are weak either in defining, or in planning or in evaluating the objectives (in some cases weak in all). Without these basic strategic acts, it is really difficult to evaluate the possibility of using information systems as a strategic resource (Levy & Powell, 2000). In the informational dimension two of the most basic tools, namely the cash flow and budget, in different times horizon, were analyzed. The results are discouraging because only six companies (9% of the sample) used a budget in a three-year horizon and only twenty one (30% of the sample) use cash flow in an annual basis. In these dimensions the focus was on the simplest numerical tools. Hence, to

contemplate non-numerical measures for example productivity of human resources, administrative efficiency and so on is far-fetch for the Argentines' SMEs.

Only six companies (clusters 1 and 2) are using what can be defined as SIS because they have business strategies and they view that the information systems can support them to achieve their goals. It is worth noting that there are not a high percentage of companies that realized the significance of the information systems (only 13% of the sample - 9 companies). However even in those cases we have companies that do not contemplate the long-term, not only in information systems terms but also, what is worst, in strategic terms.

As it was said earlier, these results are pessimistic but nevertheless there are potentially a lot of opportunities because there is an almost unexplored field that is yet to be developed. There is in the future a potential scope to apply and use the strategic information systems concepts in the SMEs in Argentina. Unfortunately, at this moment, and due to the highly uncertainty, as a consequence of macroeconomic and political aspects (described in this paper), it is not possible to begin now with the proposals of section 7. As far as the Argentinean situation becomes more stable, the companies must think in terms of SIS. To implement SIS, it is perhaps possible to begin with the use of different frameworks, for example the ones proposed in the last section. It is important to follow the earlier proposed suggestions in the application of the frameworks for a better understanding and a full utilization of SIS. Otherwise the consequences will be a rejection of SIS due to misunderstanding or a sub-utilization of the concepts. After this pre-step the linkage of the information systems to the business strategy will be easier to carry out. In the Argentinean context we are applying what Earl defined as the alignment problem because the other two questions aimed by Earl (the opportunity problem and the integrated information business strategy) are far-fetched in the Argentinean's SMEs' future context. Hence, the alignment problem must firstly be addressed and then the companies will be able to address the other two questions to obtain full advantage of the SIS.

9. References

- Alavi, M. and Leidner, D. 1998. *Knowledge management systems: emerging views and practices from the field*. Working paper, University of Maryland.
- Benjamin, R. I., Rockart, J.F., Scott Morton, M. S. and Wyman, J. 1984. *Information technology: a strategic opportunity*, Sloan Management Review, Spring.
- Blili, S., Raymond, L., 1993. *Information Technology: threats and opportunities for small and medium-sized enterprises*. International Journal of Information Management 13, 439-448.
- Castellano, N., 1998. *Metodologia para el estudio científico de la administracion*. Cordoba. Ed. Eudecor.
- Centro de Estudios para la Produccion. 2000 *Notas de la Economia Real*. Diaz et al. (Editors). Ministerio de Economia Republica Argentina. 13, Enero-Febrero.
- Churchill, N.C., Lewis, V.L., 1983. *The five stages of small business growth*. Harvard Business Review, May/June.
- Ciborra C. and Andreu R. 2000. *Knowledge across Boundaries: Managing knowledge in Distributed Organizations*. ISSN 1472-9601.
- Courtney, H., Kirkland, J. and Viguerle, P., 1997. *Strategic under Uncertainty*. Harvard Business Review, Nov/Dec, 67-79.
- Dapena Fernandez, J.L., 2000. *La Contabilidad Gerencial como herramienta competitiva en las Pymes de la ciudad de Cordoba*. Secretaria de Ciencia y Tecnologia. Republica Argentina.
- Davidow W. and Malone, M. 1992. *The Virtual Corporation*. New York: Harper Business.
- Decree number 1917/99 (23/08/99). Province of Cordoba. Argentina Republic.
- Decree number 2341/99 (18/11/99). Province of Cordoba. Argentina Republic.
- Earl, M., 1999. *Strategy-Making in the Information Age in Rethinking Management Information Systems*. Edited by Currie, W. and Galliers R., Oxford University Press.
- Flaig, L. 1993. *The Virtual Enterprise*. Electronic Business, pp. 153-155.
- Galliers, R.D. 1991. *Strategic information systems planning: myths, reality and guidelines for successful implementation*. European Journal of Information Systems 1 (1), 55-64.
- Galliers, R., Leidner, D., Baker, B., 1999. *Strategic Information Management*. 2nd Ed. Butterworth-Heinemann.
- Gonzalez Fraga, J., 1999. *Políticas para las Pequeñas y Medianas Empresas: Evaluación y Propuestas*. Instituto Argentino de Mercado de Capitales.
- Keen, P., 1981. *Information Systems and Organizational Change*. Sloan School of Management, MIT. Communications of the ACM, 1 Vol. 24, 24-33.
- Koontz, H. and O'Donnell, C. 1968. *Principles of Management*. 4th Edn. McGraw Hill Inc. Printed in U.S.A.
- Law number 24.467 (28/03/95). Argentina Republic.
- Levy, M., Powell, P., 1998. *SME flexibility and the role of information systems*. Small Business Economics 11, 183-196.
- Levy, M., Powell, P., Galliers, R., 1999. *Assessing information systems strategy development frameworks in SMEs*. Information & Management 36, 247-261.

- Levy, M., Powell, P., 2000. *Information systems strategy for small and medium-sized enterprises: an organizational perspective*. Journal of Strategic Information Systems 9, 63-84.
- Lizasoain, L. and Joaristi, L. 1995. *SPSS para Windows*. Ed. Parainfo.
- Manly, B., 1988. *Multivariate Statistical Methods*. Chapman and Hall Ltd. Great Britain.
- Mc Farlan, W.F., 1984. *Information technology changes the way you compete*. Harvard Business Review, May/June.
- Pettigrew, A.M., 1985. *Contextualist research: A natural way to link theory and practice*. In Research Methods in Information Systems E. Mumford, E. et al. (Editors). Elsevier Science Publishers B.V. North-Holland.
- Poon, S., 2000. *Business environment and internet commerce benefit – a small business perspective*. European Journal of Information Systems 9, 72-81.
- Porter, M., 1980. *Competitive Strategy*. Free Press, New York.
- Porter, M., Millar, V., 1985. *How information gives you competitive advantage*. Harvard Business Review, July/August.
- Porter, M., 1996. *What is Strategy*. Harvard Business Review, Nov/Dec, 61-78.
- Porter, M. 2001. *Strategy and the Internet*. Harvard Business Review, March, 63-78.
- Ward, J., Griffiths, P., 1999. *Strategic Planning for Information Systems*. 2nd. Ed. Wiley & sons Ltd.

10. Appendix A

The present paper was accomplished based in a research performed in Cordoba related to strategy, management, management accounting and information in SMEs. In the present investigation the principles of Information Systems Management were applied to analyze the state of the art of strategic information systems in Argentinean's SMEs and to analyze the way to help these companies by using SIS.

The information of the former research that was utilized in this paper is:

Statistic Technique: Multivariable Analysis. Clusters

Amount of Clusters: Four (4)

Main Results:

First Cluster (6 Firms)

Percentages				
Class/ Mode	Mode/Class	Characteristics	Variables	Amount
100.00	100.00	Mode N° 1	3 Years budget	6 firms
23.81	83.33	Mode N° 1	Annual Cash F.	21 firms

Second Cluster (3 Firms)

Percentages				
Class/ Mode	Mode/Class	Characteristics	Variables	Amount
100.00	100.00	Mode N° 1	Evaluat. L.T.O.	3 firms

Third Cluster (43 Firms)

Percentages				
Class/ Mode	Mode/Class	Characteristics	Variables	Amount
81.63	93.02	Mode N° 1	Evaluat. S.T.O.	49 firms
90.91	46.51	Mode N° 2	Usefulness of Inf.	22 firms
72.22	90.70	Mode N° 1	Planned S.T.O.	54 firms
68.25	100.00	Mode N° 1	S.T.O.	63 firms
68.25	100.00	Mode N° 2	3 Years budget	63 firms
76.92	69.77	Mode N° 1	Emp. Know S.T.O.	39 firms

Evaluation of S.T.O. with the actual performance

Mode N° 1 49 firms Mode N° 2 20 firms

Evaluation of L.T.O. with the actual performance:

Mode N° 1 3 firms Mode N° 2 66 firms

Training

Mode N° 1 46 firms Mode N° 2 23 firms

Employees know the S.T.O.:

Mode N° 1 39 firms Mode N° 2 30 firms

Employees know the L.T.O.:

Mode N° 1 1 firm Mode N° 2 68 firms

Annual Budget:

Mode N° 1 35 firms Mode N° 2 34 firms

Three Years Budget

Mode N° 1 6 firms Mode N° 2 63 firms

Monthly Cash Flow

Mode N° 1 57 firms Mode N° 2 12 firms

Annual Cash Flow

Mode N° 1 21 firms Mode N° 2 48 firms

Usefulness of Information for management

Mode N° 1 47 firms Mode N° 2 22 firms

Strategic information unavailable for the management

Mode N° 1 46 firms Mode N° 2 23 firms

Composition of the groups

Cluster N° 1

Companies n° 1, n° 5, n° 7, n° 26, n° 48 and n° 52

Cluster N° 2

Companies n° 6, n° 13 and n° 55

Cluster N° 3

Companies n° 2, n° 3, n° 4, n° 8, n° 9, n° 12, n° 14, n° 15, n° 16, n° 17, n° 19, n° 20, n° 21, n° 22, n° 23, n° 24, n° 27, n° 28, n° 29, n° 30, n° 31, n° 32, n° 33, n° 34, n° 37, n° 39, n° 40,

n° 41, n° 42, n° 44, n° 46, fl 50, n° 51, n° 53, n° 54, n° 56, n° 57, n° 59, n° 62, n° 63, n° 64, n° 65 and n° 67

Cluster N° 4

Companies n° 10, n° 11, n° 18, n° 25, n° 35, n° 36, n° 38, n° 43, n° 45, n° 47, n° 49, n° 58, n° 60, n° 61, n° 66, n° 68 and n° 69

Distance to the theoretical center

Cluster N° 1

1. Company n° 5, distance of 0.08822
2. Company n° 52, distance of 0.08822
3. Company n° 26, distance of 0.10085

Cluster N° 2

1. Company n° 6, distance of 0.21488
2. Company n° 13, distance of 0.21488
3. Company n° 55, distance of 0.85951

Cluster N° 3

1. Company n° 37, distance of 0.14079
2. Company n° 67, distance of 0.24006
3. Company n° 2, distance of 0.28542

Cluster N° 4

1. Company n° 68, distance of 0.29200
2. Company n° 47, distance of 0.29425
3. Company n° 61, distance of 0.29425

Case Studies

The case studies were developed in order to analyze in a deeper way the sample by analyzing the representative firm of each cluster. The interviews were verbal, with open questions aimed mainly to understand the way the managers and owners run the firms. In order to select the case studies the most representative companies of each cluster were selected according to the distance between the variables of each company and the theoretical center of each cluster.

Cluster 1

The company that represents this cluster is Arteché – Inepar – Tte S.A.

It represents the cluster because the distance of the company with the theoretical center is of 0.08822

The person interviewed was the General manager

Cluster 2

The company that represents this cluster is B y M S.R.L. (Barrientos y Milanesio).

It represents the cluster because the distance of the company with the theoretical center is of 0.21488

The person interviewed was the General manager and Owner of the company

Cluster 3

The company that represents this cluster is LEN S.R.L.

It represents the cluster because the distance of the company with the theoretical center is of 0.14079

The person interviewed was the one in charge of the administration of the company

Cluster 4

The company that represents this cluster is VITA S.R.L.

It represents the cluster because the distance of the company with the theoretical center is of 0.29200

The person interviewed was the Owner

11. Appendix B

The questionnaire utilized in the field research was conformed by the following questions:

- 1) Characteristics of the products or services that the company perform.
- 2) Quantity of employees.
- 3) Assignment of the employees inside the company among manufacturing, management, sales and other departments.
- 4) Objectives for the present year.
- 5) Objectives for the next five years.
- 6) Did you plan how to achieve the objectives for the present year.
- 7) Did you plan how to achieve the objectives for the next five years.
- 8) Do you perform an evaluation between the objectives for the present year and the actual performance of the firm.
- 9) Do you perform an evaluation between the objectives for next five years and the actual performance of the firm.
- 10) With which periodicity, monthly, every three months, every four months, twice a year, once a year.
- 11) Do you train your employees.
- 12) If you train your employees. This train is in order of the goals for the present year, for the next five years or the goals in general of the firm.
- 13) Did your employees know the goals for this year (according to the function an level of each employee).
- 14) Did your employees know the goals for the next five years (according to the function an level of each employee).
- 15) Did your employees know how the activities they perform contribute to the goals of the firm for this year.
- 16) Did your employees know how the activities they perform contribute to the goals of the firm for the next five years.
- 17) Does your company make annual budget.
- 18) Does your company make a budget for the next three years.
- 19) Does your company make monthly cash flow.
- 20) Does your company make annual cash flow.
- 21) Who manages the accounting function of the firm.
- 22) Which information does this accounting sector provide to the firm.
- 23) Do you consider that this information is useful for the strategic management of the company. In case not please explain why.
- 24) Which measures do you consider as most important for the management of the firm. Do you have this information available at the company.
- 25) Is there any information that you consider strategic and is not available at your company. Which information. Why is not available.
- 26) Do you receive the information you use for managing the company in one report or in more. Which is the periodicity of the delivery of this information.
- 27) Do you have computerized systems in your company. Which one.

12. Appendix C

The sample was conformed by the following companies:

- | | |
|--|---|
| 4) ACCA S.A.I.C. y A. | 180) GARNIER ENRIQUE FRANCISCO |
| 10) ALBIÑANA HUMBERTO | 186) GONZALEZ JUAN ALBERTO |
| 17) ALTAMIRANO RAÚL RAMÓN | 193) GRAZIANI GRÁFICA S.A. |
| 23) A. PONS E HIJOS S.R.L. | 199) HIJOS DE FELIPE ASEF S.A. |
| 30) ARTECHE – INEPAR –TTE S.A. | 206) INCARDONA SALVADOR Y OTROS |
| 36) B y M S.R.L. | 212) INDUS METAL S.R.L. |
| 43) BAUEN S.A. | 219) INDUSTRIAS PUBLICITARIAS S.R.L. |
| 50) BOFELLI OLGA | 225) INSTRELEC S.R.L. |
| 56) BROCANELLI GUERRA S.R.L. | 232) JORGE KOWALZUCK S.R.L. |
| 63) CANOVAS JOSE LUIS | 238) JUAN CARLOS YARRYURA E HIJOS
S.H. |
| 69) CASA PROSPERAR S.A. | 245) LA BALCANICA S.R.L. |
| 76) CHAMMAS S.R.L. | 251) LA SERRANITA S.R.L. |
| 82) CIT METAL S.R.L. | 258) LADRILLOS MERLINO S.R.L. |
| 89) CONAM S.R.L. | 264) LEN S.R.L. |
| 95) CORDBELL S.R.L. | 271) LOPEZ RAFAEL MANUEL FRANCISCO |
| 102) CUGAT TERESITA RAMONA | 277) LUMICORP S.R.L. |
| 108) DAILLY NORBERTO HECTOR Y
OTRO | 284) MANUEL BARRADO S.A.I.C. |
| 115) DISAR S.R.L. | 290) MARTINEZ PABLO MARCELO |
| 121) DITEL S.R.L. | 297) MERESHIAN GUILLERMO |
| 128) DYSEM S.A. | 303) METALÚRGICA DEGIORGIS S.A. |
| 134) ELECTROMECAÁNICA GOSCA
S.R.L. | 310) MODA S.R.L. |
| 141) ESPAÑON JUAN MARIO S.A. | 316) MOLLA HECTOR LEONIDES |
| 147) FACALCUER S.R.L. | 323) MUÑOZ HORACIO |
| 154) FIARDI GRACIELA MARTA | 329) NOV CARLOS ALBERTO |
| 160) FRANCO NORMA Y FRANCO
CLAUDIA S.H. | 336) ONCATIVO COMESTIBLE S.R.L. |
| 167) GAL DIP S.R.L. | 342) ORTIZ Y CÍA. S.A. |
| 173) GALLUCCI ROQUE SALVADOR E
HIJOS | 349) PANCOR S.A. |
| | 355) PARQUETS SANTA ANA S.R.L. |
| | 362) PERIKO´S S.C. |
| | 368) PINTURAS SAN AGUSTÍN S.R.L. |

375) PORTA HNOS. S.A.

381) PRODISMO SUR S.R.L.

388) RAR S.A.

394) REGIONAL ALIMENTICIO S.R.L.

401) ROBOTTI JORGE Y OTROS

407) RUBOL S.A.I.C.

414) SAHUCOR METALÚRGICA S.R.L.

420) SBAFFI Y CÍA. S.A.

427) SICOR S.R.L.

433) SOHE S.R.L.

440) STAMPI 5 S.A.

446) TABORDA JUAN CARLOS Y OTRO S.H.

453) TALPE S.A.I.C.F.I. y A.

459) TEKNIX ARG. S.R.L.

466) TOMASELLI G. Y TOMASELLI M. S.H.

472) UEB SODAS S.R.L.

479) VENENCIA CALZADOS S.R.L.

485) VITA S.R.L.

492) ZAPA CORD S.R.L.