Referência completa para citação
FREITAS (H.), LUCIANO (E.M.) e TESTA (M. G.). Research topics in Management Information Systems : a comparative study France/Brazil. AIM - Association Information et Management 2004, Paris. 8 p..

Research topics in Management Information Systems: a comparative study France/Brazil

Résumé

Une fois correctement appliqués et contrôlés, les systèmes d'information fournissent des gains significatifs de productivité, permet de réinventer des processus, automatise des tâches, soutient les activités qui ne pourraient pas probablement être exécutées en son absence. Ils permettent également une réduction des coûts opérationnels et l'élimination des fonctions inutiles, en plus d'augmenter la rapidité et l'exactitude des décisions. En raison de cette importance, on s'attend que la recherche SI puisse contribuer non seulement à établir une base de connaissance pour l'académie elle-même, mais qui serve également les professionnels dans les organismes. De cette façon, le choix des sujets de recherches est crucial. Les sujets de recherche, néanmoins, présentent des différences significatives entre les pays. Le but de cet article est d'identifier les différences dans des sujets de recherches entre le Brésil et la France dans le domaine de la gestion de systèmes d'information : une comparaison est proposée entre le congrès brésilien ENANPAD (domain de gestion de l'information) et le congrès de l'AIM (France), en vérifiant des différences d'approches comme des opportunités de recherche.

Mots clefs : Recherche en SI, sujets de SI, diferences de pays.

Abstract

When properly applied and managed, Information Systems (IS) provides significant productivity gains, reinvents processes, automates tasks, supports activities that couldn't possibly be performed without it. It also enables a reduction in operational costs and elimination of unnecessary functions, in addition to enhancing the quickness and accuracy of decisions. The IS research is expected to not only contribute to building a knowledge base for the academy itself, but also to serve IS professionals in organizations. With this purpose, the choice criteria of research topics is crucial. Research topics, however, present significant differences among countries. The goal of this article is to identify the differences in research topics between Brazil and France in the MIS field: a comparison is proposed between the main Brazilian academic congress in the IS field (ENANPAD, Information Management area) and the AIM congress (France), verifying differences in approaches as well as research opportunities.

Key-words : IS research, IS subjects, countries diversity.

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Introduction[1]

Information technology (IT) has been revolutionizing organizational practices, as it "plays a strategic role in organizations" (Benamati and Lederer, 1998, p.37) for the reason that "no company eludes from its effects, it's taking the whole economy by storm", (Porter, 1999, p. 83). When properly applied and managed, IT provides significant productivity gains, reinvents processes, automates tasks, supports activities that couldn't possibly be performed without it. It also enables a reduction in operational costs and elimination of functions that bring nothing to the table, in addition to enhancing the quickness and accuracy of decisions.

In a global marketplace, with an information-based economy, "the consistency between organizations is based on the ability of acquiring, handling, interpreting and utilizing the information (Mcgee and Prusak, 1994) obtained in an effective and reliable fashion. Kendall and Kendall (1991, p.1) say that "those responsible for decision making have begun to understand that information is no longer an exclusively collateral product from company operations, rather, it's one of its promoters", and must be regarded and dealt with as a precious resource in order to effectively contribute to the betterment of organizational results (Freitas et al., 1997).

In view of this importance, the research in Information System (IS) is expected to not only contribute to building a knowledge base for the academy itself, but also to serve IS professionals in organizations. With this purpose, the existence of criteria for the choice of research topics is crucial (Benbasat and Zmud, 1999). Research topics, however, present significant differences among countries.

The work by Desq, Fallary and Reix (2002), for instance, shows the great difference between the French and the American output in the MIS area. Kauffman and Walden (2001) carried out a broad study aiming at listing study topics in e-commerce. Our group also conducted studies of this nature for Brazilian, Latin American, American and European congresses, in the settings of e-commerce (Luciano, Testa and Freitas, 2003) and IS (Freitas , 2000), presenting an overview of this type of research and outlining topics for further studies.

In this context, learning what topics are being studied by other investigators becomes important, as one can look at trends, non-investigated aspects and potential research collaborations between countries. Additionally, we can have a clue as to what's been studied in order to later compare that with what might be relevant for IS professionals.

Thus, the goal of this article is to identify the differences in research topics between Brazil and France in the field of Management Information Systems. To do so, a comparison is proposed between the main Brazilian academic congress (ENANPAD, Information Management area) and the AIM congress (France), in the field of Information Systems, verifying differences in approaches as well as research opportunities. Consequently, we intend to provide data to ascertain whether what's been academically studied is useful for organizations and if it's related to the practice and topics that emerge on a daily basis in order to… "seek rigor, move towards society's needs". (Freitas, 2000)

In this introduction, the focus and objective of the research have been presented. Section 1 concerns the theoretical basis of the study, while section 2 presents the research method. In section 3, the results are discussed, as well as some final considerations are presented in section 4.

1. Research in MIS: topics and relevance

For Freitas and Lesca (1992), the companies that will win the economic warfare are the ones that will have won the information war, which demonstrates that the role of information is the adaptation of companies. Freitas and Lesca (1992) write that information and knowledge constitute a key resource to a successful adaptation of a company into a competitive setting, that is, information and knowledge must be used as competitive assets, teaching man how to generate information and knowledge, and more and more incorporating information and knowledge into products, services and decisions.

Information has played a significant role in the definition, execution and integration of organizational strategies, being characterized thus as one of the most important assets to an organization (Ramos, 1998). According to McGee and Prusak (1994), "as the integration of strategy and its execution become the most important organizational challenge, the role of information as an essential tool for achieving integration becomes clearer".

For Porter and Millar (1985), in every organization IT is characterized as a competitive advantage, pertaining to both costs and the differentiation of products or services. Cornella (1994) believes that each passing day the ability of reducing the time of design, development, production and distribution of products, the aptitude for quickly responding to market needs and trends, and the capability of being more flexible in every company operation become more important in order to allow a fast adaptation. To develop such ability, the correct management of information, supported by IT, is crucial.

The role of IT in organizations has changed significantly over the past decade. With globalization and the increased competition between markets and countries, IT is transcending its traditional role as management support and not only is it evolving into a strategic role with potentiality of supporting chosen business strategies, but also shaping new strategies and helping define them (Wang, 1997; Luftman, 1996; Walton, 1993; Henderson and Venkatraman, 1993).

Companies that failed to follow the evolution of IT haven't prospered (Jenkins et al., 1990), placing themselves in terms of technology in strategic disadvantage (Mahmood and Soon, 1991). Therefore, IT has become a key factor to the strategy of companies (Walton, 1993), which turned it into a powerful business tool (Porter, 2001) able to alter the basis of competitiveness and business strategies (Campos Filho, 1994).

However, despite the evident importance of information technologies to companies, the relevance of the research in IS doesn't enjoy the same consensus. Bembasat and Zmud (1999) draw the attention to the negligence of many IS professionals towards academic research for judging it devoid of practical applications.

"It's certainly not a surprise to most IS academics that the business community would question the practical relevance of IS research published in the leading journals of our field. Does IS research produce the knowledge that today's IS professionals can apply in their daily work? Does it address the problems or challenges that are of concern to IS professionals? Does it focus on current technological and business issues? (Bembasat and Zmud, 1999, p. 4)."

Even if every IS research isn't expected to satisfy the needs of IS professionals, it's highly desirable that a part of this could really serve as a resource for organizations to improve the use of information technologies. According to Bembasat and Zmud (1999), the reasons that account for the lack of relevance of IS research may be: an emphasis on rigor over relevance, lack of cumulative tradition, the dynamism of Information Technology, limited exposure to relevant context, besides institutional and political factors.

Amongst other recommendations to lead IS research to be more relevant, Bembasat and Zmud (1999) point out to topic selection. In view of this, they give three recommendations for research topic selection:

"Recommendation 1: the foremost criterion to be applied in selecting topics should be directly related to the future interest that key stakeholders (journals, colleagues, and practitioners) are likely to hold in a topic" (Bembazat and Zmud, 1999, p.8).

"Recommendation 2: IS researchers should look to practice to identify research topics and look to the IS literature only after a commitment has been made to a specific topic." (Bembazat and Zmud, 1999, p.8).

The emphasis on future interest highlighted by Benbazat and Zmud (1999) stems from the necessary delay of 3 to 5 years between the beginning of a research and the publication of its results. The authors also present a third recommendation on the selection of a study topic.

"Recommendation 3: More discussion on the core research issue of the IS field that has the potential to influence practice is needed. Members of the IS research community must prepare manuscripts that define the important phenomena for the various segments of the IS discipline, and editors of the leading IS journals, as well as other major outlets such as IS World Net, must work with these authors to ensure that such information is disseminated." (Benbazat and Zmud, 1999, p.8)

As a matter of fact, there are papers that underscore the need for studies on some specific topic. An example is the work by Alavi and Leidner (2001), which attempts to justify the need for studies on Technology Mediated Learning (TML). In the article, the authors attempt to explain why the MIS field is in a privileged situation to build a knowledge base on the subject.

In addition to specific works on the topic, initiatives such as those by Caron-Fasan and Lesca (2003) trying to collect opinions from different researchers on the present and future in IS can be similarly useful in the choice of research topics. The idea of the future-oriented book (released at the 2003 AIM meeting) meets the proposal by Bembasat and Zmud (1999) that researchers need to anticipate so as to avoid outdated topics.

It must also be stressed that the research topics in the MIS field aren't necessarily the same in different places. They change not only as time goes by, but also as a result of geographic location. Lyytinen (1999, p.25), replying to the work by Bembasat and Zmud (1999), stressed:

"As a European scholar who has taught and done research on both sides of the Atlantic, I do not see all issues raised, however, in the same light. […] I was surprised that Benbasat and Zmud do not look at broader institutional issues that affect how relevance is defined in a different research context. Variation in these issues also explains some differences between the European and the North American IS research".

The significant difference between the American and French research, for example, is underscored in the extensive work by Desq, Fallary and Reix (2002). In a more simplified way, however, we intend in this work to further understand the differences between Brazil and France, giving room thus to debates concerning the importance of the selection of research topics.

2. Research Method

This study has an exploratory nature, constituting an analysis of articles in the field of Information Systems published in the annals of 2 congresses: the annual meeting of the Association Information Management (AIM - France) and the National Meeting of Management Graduation Programs (ENANPAD - Brazil). Since the Brazilian congress encompasses different fields related to Management, only the

articles of Information Management were analyzed, which correspond to the international field of MIS. The articles presented in the 2000, 2001, 2002 and 2003 congresses of both ENANPAD and AIM were analyzed.

We selected 390 articles, 142 from ENANPAD and 248 from AIM. From each article we recorded the title, type of article (complete research, research in progress, panel/debate proposal, teaching case, or other), abstract, track or thematic area (attributed by the congress), authors, university, laboratory, among other items.

Through a content analysis performed with these data, one or two categories were assigned by article, representing research topics or subtopics. Topic assignment was carried out by two researchers, who, following the individual analysis, discussed with each other to compare differences, in a process defined by Krippendorff (1980) as test-retest. After the comparison, we arrived at a set of 37 different topics, from which the analyses presented in the next section were performed.

3. Results

As we can observe in table 1, there seems to be a trend of increase in the number of publications in both congresses, which may be a reflex from a rise in the number of studies (and occasionally an increase in their quality). Curiously, in the year 2002, there was a significantly higher number of papers presented both at ENAMPAD and at AIM, which, for the time being, could only be explained by mere coincidence.

TABLE 1: No. of articles and percentage by year and congress

Year/ Meeting	2000	2001	2002	2003	TOTAL
ENANPAD	18,3% (26)	21,1% (30)	38,0% (54)	22,5% (32)	100% (142)
AIM	18,5% (46)	12,5% (31)	39,9% (99)	29,0% (72)	100% (248)
TOTAL	18,5% (72)	15,6% (61)	39,2% (153)	26,7% (104)	100% (390)

In table 2, we can see the topics identified in the 390 articles analyzed. 37 topics were identified (those that were identified in as few as 3 or less articles were included in the category "various").

As it can be noticed (table 2), there's a predominance of articles that analyze aspects related to e-commerce and the web. There's a difference, however, between the articles of ENANPAD and AIM: in the first are papers that address the use of the web by organizations outside a situation of e-commerce, and vice-versa.

Table 2 presents yet other differences between both congresses. At ENANPAD, there is proportionally a much greater amount of papers on IT Adoption and IT Project. One explanation for this difference may reside in the great concern on the part of Brazilian companies, in view of shortage of resources, with benefits and costs in the adoption and implementation of information technologies. Another likely explanation may be found in the greater difference between Brazilian companies pertaining to mastering IT: in Brazil, there are many companies advanced in terms of IT, but also many in precarious state, France being, therefore, superior in this respect.

TABLE 2: topics of the analyzed articles and number of citations

Subject/ Meeting	ENANPAD (Brazil)	AIM (France)	TOTAL
E-commerce	10,6% (15)	24,2% (60)	19,2% (75)
Internet	13,4% (19)	16,9% (42)	15,6% (61)
IT impact	7,7% (11)	13,3% (33)	11,3% (44)
IT adoption	12,7% (18)	3,6% (9)	6,9% (27)
Knowledge Management	7,0% (10)	6,9% (17)	6,9% (27)
ERP	7,7% (11)	4,0% (10)	5,4% (21)
Business and IT alignment	4,2% (6)	6,0% (15)	5,4% (21)
IS evaluation	4,9% (7)	4,4% (11)	4,6% (18)
Decision Making	5,6% (8)	3,6% (9)	4,4% (17)
Telework and virtual teams	4,2% (6)	4,0% (10)	4,1% (16)
IS research	5,6% (8)	2,4% (6)	3,6% (14)
Business Inteligence	0,7% (1)	5,2% (13)	3,6% (14)
E-learning	0,7% (1)	4,8% (12)	3,3% (13)
IS Project	6,3% (9)	1,2% (3)	3,1% (12)
IS implementation	4,2% (6)	2,0% (5)	2,8% (11)
Outsourcing	4,2% (6)	2,0% (5)	2,8% (11)
IS development	3,5% (5)	2,0% (5)	2,6% (10)
Virtual organization	2,1% (3)	2,8% (7)	2,6% (10)
E-governement	4,2% (6)	1,2% (3)	2,3% (9)
E-mail	0,0% (0)	3,2% (8)	2,1% (8)
IT users	4,2% (6)	0,8% (2)	2,1% (8)
Project management	0,7% (1)	2,8% (7)	2,1% (8)
CRM	0,0% (0)	2,8% (7)	1,8% (7)
SCM	0,0% (0)	2,8% (7)	1,8% (7)
Inter organizations IS	0,0% (0)	2,4% (6)	1,5% (6)
EDI	0,7% (1)	1,6% (4)	1,3% (5)
IS architecture	1,4% (2)	1,2% (3)	1,3% (5)
Intranet	0,7% (1)	1,2% (3)	1,0% (4)
Teaching IS	0,0% (0)	1,6% (4)	1,0% (4)
Various	4,9% (7)	2,0% (5)	3,1% (12)
TOTAL*	**100% (174)**	**100% (331)**	**100% (505)**

* Multiple choice question (as many as 2 options).

On the other hand, AIM stands out as regards a greater amount of papers on Business Intelligence. This reflects the large number of works included in the topic Business Intelligence, practically non-existent in Brazil, but strongly

present in France, with consolidated research groups.

Harder to understand is the predominance of e-learning at AIM, which doesn't correspond to our perception that e-learning is today more diffused in France than in Brazil. One of the explanations for this apparent contradiction, however, is that in Brazil the topic has been more deeply studied by other fields of knowledge (such as Human Resources Management, or even by Education and Cognitive Psychology), existing some resistance by the MIS area to accept the topic within its range.

Also outstanding in table 2 is the relatively greater amount of papers on e-mail, Project Management or Methodology, Customer Relationship Management (CRM), and Supply Chain Management (SCM) and Logistics. As regards the use of e-mail, no paper was identified at ENANPAD in the past 4 years, whereas 8 publications have been released in France. An assumption (to be confirmed, obviously, as all others here raised) is that the topic continues and is more emphasized in France due to the relative delay in the dissemination of web technologies as a result of Minitel.

As regards CRM and SCM, these are topics that have been more addressed by the Marketing field in Brazil. Even papers that analyze technological aspects of CRM and SCM are more easily found in the ENANPAD proceedings in the Marketing field than in the MIS one. In table 3, we can observe the papers topic evolution over 4 years.

TABLE 3: Topics of the analyzed articles and number of citations

Subject/ Year	**2000**	**2001**	**2002**	**2003**	**Total**
Electronic Commerce	7	15	39	14	75
Internet	9	6	29	17	61
IT impact	14	7	13	10	44
IT adoption	5	8	8	6	27
Knowledge Management	2	4	7	14	27
ERP	4	3	8	6	21
Business and IT alignment	7	0	6	8	21
IS evaluation	5	4	7	2	18
Decision Making	5	3	4	5	17
Telework and virtual teams	6	0	7	3	16
IS research	0	5	8	1	14
Business Inteligence	1	2	5	6	14
E-learning	0	0	9	4	13
IS project	4	1	5	2	12
IS implementation	5	0	2	4	11
Outsourcing	1	3	1	6	11
IS development	5	2	2	1	10
Virtual organization	6	1	1	2	10
E-governement	0	2	3	4	9
IT users	3	1	1	3	8
Project management	4	0	2	2	8
E-mail	2	1	2	3	8
CRM	2	0	1	4	7
SCM/Logistics	0	2	4	1	7
Inter organizations IS	1	0	5	0	6
IS architecture	1	0	1	3	5
EDI	1	1	2	1	5
Teaching IS	4	0	0	0	4
Intranet	2	0	0	2	4
Various	2	3	5	2	12
TOTAL*	**108**	**73**	**188**	**136**	

* Multiple choice questions (as many as 2 options)

In table 3 we can verify the increase number of papers linked with e-commerce and web, demonstrating that these have been gaining more room, in spite of the strong decline in the number of papers in 2003 (the persistence of this trend must be verified afterwards).

Papers on IT adoption and impact, albeit more traditional, maintain a relatively steady number of publications, demonstrating a concern that remains among researchers. Most curious is the papers evolution on ERP, a topic that many could believe has almost been exhausted in terms of research.

Amongst the topics that have emerged more lately, e-learning stands out, with studies spanning the years 2002 and 2003 only, an indication that the research on this topic is still recent and is still an open field for more extensive investigations, as confirmed by authors like Alavi and Leidner (2001).

By means of figure 1 an interesting difference can be found between the French and Brazilian congresses. There's at AIM a much greater proportion of papers with one author only, whereas at ENANPAD the great predominance is of papers with 2 authors. Also the amount of papers with 3 or more authors is slightly higher at ENANPAD.

These data seem to reflect the work system of Brazilian universities, from which almost all articles presented at ENANPAD come. It's a work system that privileges the development of researches collectively, with many publications in collaboration between master's degree or doctoral students and their respective supervisors.

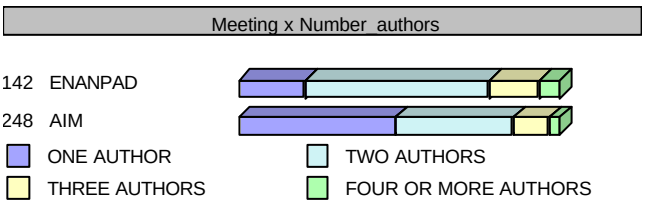

Figure 1: number of authors x meeting

Table 4 confirms that practically every ENANPAD research is conducted in universities. At AIM, the situation is slightly different, since there are researches carried out in laboratories not linked to universities (something that doesn't exist in the Brazilian context).

We point out, however, to 2 points regarding table 4: firstly, there exist articles that, even though are carried out in universities, count on the presence of professionals from companies, a datum that isn't evident in the table; secondly, some doubts occurred in the identification of the origin of certain papers, as not always was clear information available.

TABLE 4: amount of universities x meeting

Meeting/ N. universities	ENANPAD	AIM	TOTAL
ZERO	0,0% (0)	8,9% (22)	5,6% (22)
ONE	72,5% (103)	71,8% (178)	72,1% (281)
TWO	25,4% (36)	18,1% (45)	20,8% (81)
THREE	2,1% (3)	1,2% (3)	1,5% (6)
TOTAL	**100% (142)**	**100% (248)**	**100% (390)**

Another data worth highlighting is that, while at ENANPAD almost all papers in the field of Information Management are complete researches, at AIM there are many researches in progress (42 of 248) and essentially theoretical papers or panels (50 of 248). As it is impossible to increase the number of papers at ENANPAD (given the fact that the congress encompasses several thematic areas), article selection is practically restricted to complete papers involving the collection of empirical data.

Table 5 shows the existence of international cooperation in the execution of researches. Whereas at ENANPAD as few as 4 papers written by researchers in different countries were found; at AIM the number is well above this, despite being still small.

TABLE 5: Number of countries x meeting

Number_country/ Meeting	ENANPAD	AIM	TOTAL
ONE	138	226	364
TWO	4	21	25
THREE	0	1	1
TOTAL	142	248	390

Table 6 follows the same direction, showing the distribution of papers in the continents. It's evident that AIM has a more international character, as it receives publications from several places around the world, while in Brazil practically only domestic authors are published. It's important to stress that the data in tables 5 and 6 refer to the country of the institution where the researcher is, instead of their nationality.

TABLE 6: Continent (country) x meeting

Continent/Meeting	ENANPAD	AIM	TOTAL
BRAZIL	142	2	144
FRANCE	1	180	181
ASIA	1	29	30
NORTH AMERICA	1	20	21
EUROPE (except the France)	0	34	34
TOTAL	145	265	410

With the intent of improving the understanding of differences between the AIM congress and ENAMPAD, the topics shown in table 1 were gathered in 3 major groups: IT/IS (in which categories as IT impact, IT adoption, IS evaluation, ERP, IS development, etc. were included), web (e-commerce, web, e-learning, e-government, virtual organization, e-mail,…), and management and process (KM, decision making, BI, outsourcing,…).

Figure 2 shows the predominance of each group in the AIM and ENANPAD congresses. As can be observed, the Brazilian congress emphasizes more traditional papers of the field associated to IT and IS, whereas at AIM greater emphasis is placed on papers linked with internet technology. The proportion of papers on information management and process is also higher in the French congress.

Figure 2: subject group x meeting

An analysis of the groups with the congresses was also performed, by which we could notice that in the years 2000 and 2001 a small trend of papers on IT/IS took place. In the years 2002 and 2003, though, the predominance of one particular topic became more evident: 2002 concerned mostly the web, and 2003, processes and management.

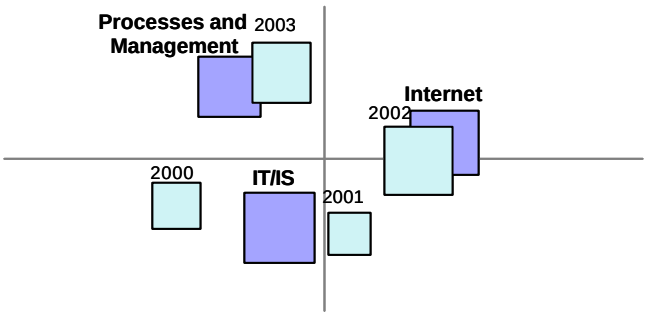

Figure 3: subject group x year

At last, table 7 summarizes some characteristics of the congresses.

TABLE 7: Some characteristics of the congresses.

	ENANPAD (142)	AIM (248)
Number authors	TWO (81) ONE (30) THREE (22)	ONE (122) TWO (91) THREE (27)
Number university	ONE (103) TWO (36)	ONE (178) TWO (45)

	THREE (3)	ZERO (22)
Subject	Internet (19) IT adoption (18) E-commerce (15)	E-commerce (60) Internet (42) IT impact (33)

ENANPAD is characterized by a greater number of authors in the papers, fewer universities involved; and as most researched topics appear the web, IT adoption, and e commerce. At AIM, there is a lower number of authors in the papers and fewer universities involved. The topics of interest for AIM are e-commerce, web, and IT impact.

4. Final considerations

On completing the data analysis, differences of approach emerged between France and Brazil. These different approaches can be the object of academic research, trends, research gaps, and opportunities for collaborations between Brazilian and French universities. Also, they can be useful for researchers as well as organizations, because these differences of perception between the 2 countries may indicate different IS needs, different forms of IS development and implantation.

For future researches, we suggest further exploring the topic security, which has been largely discussed in the business setting and is of great importance to organizations, considering the movements of IT governance (Karake, 1992). This topic was mentioned only once at ENANPAD. Another topic that could be further explored is the e-social, especially in the Brazilian congress, in which social disparities are very large, promoting digital exclusion. This topic merited 3 mentions at ENANPAD. As continuity of this research, it is intended to extend the data analysis using the dimensions of Desq, Fallary and Reix (2002)

In a moment when information technologies multiply themselves rapidly, knowing what is necessary to research and where your peers are is of great importance, as this facilitates the research process and may add to the results achieved.

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[1] This work is being accomplished with the support of CNPq and CAPES-COFECUB 394/02.