Information Systems research associated to academic projects. Case study at Spain and Venezuela. Some facts.

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Abstract. From difficulties related to research associated to academic projects on Information Systems and considering previous studies on Information Systems research, this project presents reference information and comments to support evolution on Information Systems disciplines, their methods and models. Fundamental contributions from this documental and empirical study are the case study properly with their historical analysis and next years development possibilities.

1 Introduction

Information Systems research at academic projects presents difficulties from topics definition to methodologies selection. These problems are related to students, teachers, mentors and dissertation evaluators. Consequently, too many students never define a project, too many students that define a project never have a project admission, and too many projects admitted never have been finished. It could be due to multiple view points on Information Systems concepts and their research. “Information Systems” is a combined discipline raised from technology and business world, with difficulties from both. Some international organizations as ACM (Association for Computing Machinery)²[6], AIS (Association for Information Systems)¹[3][4][5][8] and some Spanish thematic networks are working with it⁷. This project attempts to know some details about this topic and it explores case studies from Spain and Venezuela Universities.

2 Objective

To explore case studies from Spain and Venezuela universities to know research topics and methods, future projects on Information Systems academic programs and other related topics.
3 Methodology

This project have been developed through five phased method, described below:

- **Phase I. Theoretical Study supported on documental research**: some specific research publications analyzed to prepare guidelines for next phases.
- **Phase II. Empirical Study supported on qualitative methods**: semi structured interviews to 12 researchers from 7 Spain and Venezuelan research centers with multiple items related to research and relations with academic activities.
- **Phase III. Academic Curricula comparative study**: A comparative study of Spain and Venezuela Academic curricula including their research activities, carried out from public documents and databases.
- **Phase IV. Historical Case studies of Spain and Venezuela Academic curricula**: carried out from historical publications and databases, complemented with interviews to key actors.
- **V phase. Analysis and conclusions**: this phase established relationship between conclusions from the previous phases.

4 Results

4.1 Result I. Empirical Study supported on qualitative methods:

a) From interviews to 12 researchers from 7 academic research centers, it reached following conclusions:

- It does not exists a precise and unique knowledge domain definition for information Systems area.
- It does not exists a unique methodological framework. Some researchers and research centers have been develop their own methods.
- Relationship between teaching and investigation is weak fundamentally to educational effort that makes own researchers.
- Research arise from requests to answer to new forms of outlining concepts, requests from business context around universities, curiosity or interest of each researcher, all without rigorous guidelines.
- Tendency about scientific papers, beginning with oral conference local, regional and international, follow by journal publication national and international, with preference to indexed journal.

b) From intervention with students of information systems and research, could be conclude:

- Project areas on information systems research: wide variety is observed on tendencies, associated with curiosity and professional background from researchers.
- Methodologies: It observes predominance of methods presented by methodology’s teachers.
• Creation of researcher community: Creation of research community is easy with technology platform as a groupware practice.
• Publications: Same described before with interviews.

4.2 Result II. Academic Curricula comparative study:

Comparisons of academic curricula and tendencies from interviews to researchers with criterions defined during research, found following results:
a) As it shows on figure 1 (Comparison of academic curricula); variety of tendencies is confirmed from academic curricula. More research at UPM is natural because it is a doctoral degree while at UCAB is a master on science. Other criteria are a consequence of Spain and Venezuela context.

![Comparison of academic curricula](image1)

**Fig. 1.** Comparison of academic curricula.

b) As it shows on the figure 2 (Comparison of research tendencies); the maturity at UPM program, translated on research lines, flexibility of methods and relationship research-teaching is probably a fact like the continuous development at UCAB program. Other criteria are impacted by country and institutional elements.

![Comparison on research tendencies](image2)

**Fig. 2.** Comparison of research tendencies.

Due to not relevant conclusions from previous studies, a general study based on nine (9) research centers had been made, concluding:
• Exists more than 40 different research lines at 9 centers.
• About researchers resume; nine(9) Doctoral areas, five(5) Master areas and six(6) Professional areas; shows many kinds of resume emerge from researchers analysis and it impacts to the research projects.

4.3 Result III. Historical Case studies of Spain and Venezuela Academic curricula:

4.3.1 UPM case:
An historical study of academic curricula, considering weight of thematic areas and weights of mandatory and free credit units, shows a stabilization on areas with tendency to more technology application on business than technology design, as a doctoral degree on business information systems. In correspondence to this analysis, Doctoral dissertation areas, shows predominance of knowledge areas with possible relation to academic curricula.

4.3.2 UCAB case:
From an historical study of academic curricula at UCAB with not frequently changes but stronger than at UPM, it is possible to conclude:

Without considering proposal of 2005, still on revision; it is possible to observe that:
• Specialized mathematical instruction has been decreased until eliminating.
• Management instruction has been increased progressively.
• Information processing instruction with technical view has been decreased during last years.
• Information systems instruction has been decreased progressively.
• Applied Information systems instruction has been decreased progressively.
• Management information systems instruction decreased on curricula 2000.
• At start had not given methodological instruction it began at 1992 and from that time it have not been changed.
• Number of courses with variable contents contemplates from curricula 2000, represents possibilities for emergence topics.
• Number of mandatory courses have been reduced related to 1984 curricula it is due to changes on period by course from trimester to semestral.

Considering curricula 2005:
• Courses about research on information systems have been included from here.
• Course names are more related to Management, but their contents must be verified and now this information are not ready.

Dissertation presented and registered at library, shows that distribution of annual graduates are not homogeneous, probably due to changes on curricula, specially at 1999, when Venezuelan education laws remark a difference to finish specialization and master degree, with a risk for students on progress.
4.4 Result IV: Analysis and conclusions

From studies previously described, it is possible to conclude:

- “Information systems” as discipline, requires changes, evaluations and continuous reflection in order to get an identity, it requires a commitments on theoretical and methodological topics.
- Predominance on research based on empiric studies, followed of a reasonable number of research projects with theoretical orientation, leaving a reduced space to measurements of variables and case studies.
- Own philosophy is mandatory for Information Systems and research.
  - It Could be useful:
    - Research about publications to reflect the state of the art.
    - Designing or redesign of body knowledge of information systems area.
    - Defining an own identity of discipline, defining own principles, methods and procedures.
    - Be innovative
  - Research about research is necessary to define an own paradigm.
  - Proliferation of research lines probably is a consequence of absence definition for discipline.
  - Difficulties on information systems discipline could be a consequence of trans-discipline nature.
  - Difficulty to approval new projects could be a consequence of undefined area.
  - Problematic presented, have a tendency to stabilization with respect to their own history.

5 Conclusions

From related research, it is possible to conclude:

a) Respect to followed research process: It has been defined or fit during research with combination of qualitative and quantitative component. In future research must be followed a more rigorous methodology to verify results.

b) Respect to results: It reflects the great diversity of problems and advance in academic research on information systems, correlate could be established in a future studies.

c) Respect to future projects: Future projects could be deeper and wider on same themes.

In general, information systems research world is a huge domain that must be constituted as commonplace with own research in all research center.
6 References


