INFORMATION SYSTEMS ACTION RESEARCH WEAKNESSES ADDRESSED WITH PROJECT MANAGEMENT

Christian A. Estay-Niculcar - Joan A. Pastor-Collado {el_estay | pastor}@lsi.upc.es
Departament de Llenguatges i Sistemes Informàtics
Universitat Politécnica de Catalunya
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ABSTRACT

Action research is a qualitative research method with several weaknesses when it is used in Information Systems. In order to improve action research in Information Systems, in this paper we address these weaknesses with consolidated results from the project management discipline. We illustrate this proposal along two main aspects: on one side, with a retrospective analysis of a set of problems reported in a published case; and, on other side, by discussing the relationship of our proposal with the interdisciplinary work involved in an Information Systems action research project.

1. INTRODUCTION

During the last years, the importance of Action Research (Lewin, 1946) in Information Systems Qualitative Research has been stated by several researchers (Avison et al**.,** 1999; Kock et al., 1999; McKay and Marshall, 2000). But also several problems had been reported (Avison et al., 1999; McKay and Marshall, 1999a). To cope with these problems, the Information Systems community has raised the need to have frameworks that allow to take advantage and to facilitate the use of Action Research as a more valid research method, while at the same time trying to overcome the lack of rigor of some of its applications (Avison et al., 1999; Baskerville, 1999; Lau, 1999; McKay and Marshall, 2000). In this paper we propose the use of project management in Information Systems action research (IS-AR) as a way to address the reported weaknesses.

To address those problems, Estay and Pastor (2000a) presented the feasibility to use project management as a way to improve the use of Information Systems Action Research (IS-AR), which work had been framed in a project perspective for IS-AR (Estay and Pastor, 2000b, 2000c). Thus, by following Lubianiker (2000), the generic best practices of project management taken from *A Guide to the Project Management body of knowledge*, PMBOK, of the Project Management Institute (PMI, 2000), we have customized and specialized to support Information Systems Action Research (IS-AR). Furthermore, we have then extended them with particular practices oriented to support the quality and rigor criteria for IS-AR projects explained in McKay and Marshall (1999b, 2000).

Thus, in this paper we illustrate the use of generic best practices with a retrospective analysis of a set of problems reported in a published IS-AR case (Davison and Vogel, 2000). Our aim is to show the feasibility of our proposal to address recognized IS-AR problems and to comment on the potential of our approach. Moreover, we discuss the relationship of our proposal with the interdisciplinary work involved in an Information Systems action research project.

The paper is organized as follows. After this introduction, the section two presents the IS-AR and its weaknesses. The third section comments on the strengths of project management, while the fourth one exposes the improvement opportunities from project management for IS-AR through a customized PMBOK. Section five presents such customization of the PMBOK and the specialization of its project management processes for IS-AR. In section six, we develop the retrospective analysis on a published case. Then, the relationship of our proposal with the interdisciplinary work involved in IS-AR project is discussed. Finally, conclusions and future research are presented.

2. IS-AR AND ITS WEAKNESSES

Action Research is a qualitative research method the essence of which is the juxtaposition of action and research, or practice and theory. For our purposes, out of the several features of Action Research, we highlight and take three features: to search for solutions or improvements to practices, to organize Action Research in a characteristic phased cycle (Figure 1). This cycle represents Action Research as a solution searching and learning process composed commonly by four basic cycle phases (Kemmis and McTaggart, 1982): Planning (Pl), Action (Ac), Observation (Ob) and Reflection (Re), which includes Evaluating and Specifying Learning sub phases. Action Research is used in IS principally for two interrelated general purposes: to bridge the gap between theory and practice (Avison et al., 1999; Baskerville, 1999); and, as a way, to improve the IS discipline (Baskerville, 1999; Mathiassen, 1998).

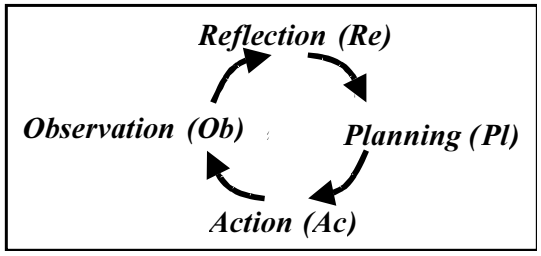


Figure 1

Action Research presents several problems when it is used in IS (Avison et al., 1999; Baskerville, 1999; Lau, 1999). By reviewing the literature, we may say that these problems had already appeared in the use of Action Research in others research domains. For this reason, we point out four problem areas raised from both characteristic problems of Action Research in general as well as from IS-AR problems (Estay and Pastor, 2000b).

- 'Epistemological change' problems area, that considers the problems that appear when a researcher becomes an action researcher, adopts or assimilates, partially or completely, the beliefs and the attitudes specific to Action Research; for example, two reported such problems are that the knowledge and literature of Action Research is diffuse (Lau, 1999) and that epistemological change is not always assumed (Elden and Chisholm, 1993).

- 'Ethics and values' problems area, that includes problems of potential biases linked to the interventionist research natural to Action Research (Kock et al., 1999; Lau, 1999).

- 'Reporting' problems area, which contains the problems related with the generation and registration of data, information and knowledge; for example, the reported problem that mostly academic documents produced (Lau, 1999; Lau, 1997).

- 'Methodological' problems area, that includes diverse problems related to the absence of elements that facilitate the monitoring, the control, the evaluation or simply the setting of the research; for example, some reported problems are the unclear validation processes and lack

of relevance of the research (Avison et al., 1999); the lack of validity of data (Baskerville and Wood-Harper, 1996); the lack of a clear method to support a theory (Baskerville and Pries-Heje, 1999); unclear approach, research aim, theory and method used (Avison et al., 1999), characteristic features, tenets, not followed (Avison et al., 1999), unclear planning and control (Mathiassen, 1998), practitioners lost during the Action Research project (Davison and Vogel, 2000), and problems with time management and necessary contract issues (Kock et al., 1999).

The analysis of these problems depicts the existence of two main causes. First, the lack of clarity in which IS researchers and practitioners think about and apply Action Research (McKay and Marshall, 1999c; Mathiassen, 1998). We believe that this situation arises from the difficulties of assimilating and adequately learning the Action Research paradigm. Second, the consultancy context in great measure implied (Kock et al., 1999) but that is the common way to use IS-AR (Mathiassen, 1998; West and Stansfield, 1999). In this case, consultancy imposes organizational interests and/or contractual obligations and responsibilities that may difficult the adequate application of Action Research.

From the analysis above, several general weaknesses arise. According to McKay and Marshall (2000), IS researchers that accept Action Research as valid are left without a well-defined method or guidelines (Avison et al., 1999). Furthermore, there do not exist well-established IS-AR quality, rigor and quality criteria. From another point of view, IS-AR does not yet have any framework enabling to take advantage of its potential for IS and facilitating its use to IS novel researchers and practitioners.

3. PROJECT MANAGEMENT AND ITS STRENGTHS

According to the Project Management Institute, project management is "the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project" (PMI, 2000, p. 3). Good project management can be considered as a means to address a project and to anticipate and solve its problems by balancing the competing demands related to scope, time, cost, quality, stakeholders and requirements. With this balance, project management is useful to ameliorate, to avoid and to overcome the problems in a project.

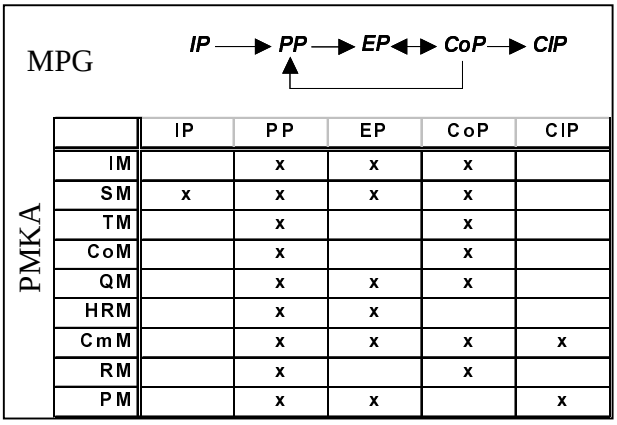
3.1. PROJECT MANAGEMENT WITH THE PMBOK

The Project Management Institute is an international organization that produces documents "that describe the generally accepted practices of project management" (PMI, 2000, p. 26). The most important one of these documents is the PMBOK, *A Guide to the Project Management Body of Knowledge* (PMI, 2000). The opportunity and relevance of the PMBOK to our work permit us to facilitate the gathering and selection of best practices, since this guide describes the knowledge and the practices "applicable to most projects of the time, and that there is widespread consensus about their value and usefulness" (PMI, 2000, p. 3), compiled and improved during the last twenty years.

Nine project management knowledge areas describe the knowledge and practices of project management in terms of their component processes. These processes are the Project Management Processes. Furthermore, these processes are grouped into management processes groups.

- The Management Processes Groups are groups of project management processes related with the project phases: initiation (IP), planning (PP), control (ClP), execution (EP) and closing (CoP).
- The Project Management Knowledge Areas describe the project management knowledge and practice in terms of their component processes. These areas are Project Integration Management (IM), Project Scope Management (SM), Project Time Management (TM), Project Cost Management (CM), Project Quality Management (QM), Project Human Resources Management (HRM), Project Communications Management (CmM), Project Risk Management (RM) and Project Procurement Management (PM).
- Project Management Processes "are concerned with describing and organizing the work of the project" (PMI, 2000, p. 7). Each process as inputs, outputs and tools/techniques to transform inputs into outputs and, a role of core or facilitating in a Management Processes Groups.

The relationships between knowledge areas and process groups are shown in the Figure 2. The project management processes are the Xs in the same. The details of groups, areas and processes may be consulted in the Annex 1.



	IP	PP	EP	CoP	ClP
IM		x	x	x	
SM	x	x	x	x	
TM		x		x	
CoM		x		x	
QM		x	x	x	
HRM		x	x		
CmM		x	x	x	x
RM		x		x	
PM		x	x		x

Figure 2

3.2. PMBOK STRONG POINTS

In general, PMBOK offers several strong points to be considered as a good base for the project management practice:

- it is an ANSI standard (PMI, 2000);
- it is considered a practical way to apply the project management standard ISO 10006 (Welch, 1995);
- the inputs, outputs and tools/techniques of its project management processes configure a defined and complete system for applying adequately project management in a flexible way; and,
- it permits to anticipate problems with the initiation and planning processes, and to address problems with the execution, control and closing processes.

Furthermore, in IS, the knowledge areas of the PMBOK have recently been proposed as the contents of the Project and Change Management course from the MSIS2000 curricula (Gorgone and Gray, 2000).

4. IMPROVEMENT OPPORTUNITIES FOR IS-AR FROM PROJECT MANAGEMENT

We propose to use of project management to ameliorate the above stated IS-AR problems. This proposal arises from several considerations, some theoretical and others drawn from experience. The most important consideration is that IS-AR problems are similar to project management problems. The project management nature of IS-AR problems could be justified briefly as follows (Baskerville and Pries-Heje, 1999; Kock et al., 1999; Lau, 1997, 1999; Mathiassen, 1998):

- commonly those aspects related with a formal commitment between the action researcher and the organization are absent, which implies a poor initiation phase;
- often those aspects related with time and cost planning, human resources selection, and research planning are weak or absent, which implies a weak planning phase;
- generally there is a lack of a formal and rigorous process in the production of theory, which implies an incomplete execution phase;
- usually the monitoring of the results and of the schedule is absent, which implies a lack of the control phase; and,
- often those aspects related with the formalization of the resolution and/or improvement obtained in