

An Historical Account of Executive Information Systems Research in South Africa

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INTRODUCTION

Executive Information Systems (EIS) are designed to serve the needs of executive users in strategic planning and decision-making. Sometimes the terms 'Executive Information Systems' and 'Executive Support Systems' are used interchangeably (Turban, McLean & Wetherbe, 1999). Definitions of EIS are varied but all identify the need for information that support decisions about the organisation (Papageorgiou & de Bruyn, 2011: p. 2). EIS can be defined as "a computerized system that provides executives with easy access to internal and external information that is relevant to their critical success factors" (Watson, Houdeshel & Rainer, 1997).

As information technology (IT) and the global environment change with Web-based technologies, the variety of information to choose from by users for strategic planning and decision-making purposes, results in a major change for EIS implementation. This major change in IT is found in the developing country of South Africa. Since EIS are still found in many organisations in South Africa, the objectives of this article are to (1) give an historical account of EIS research in South Africa; and (2) to suggest some future research directions for these computerised systems.

This article is organised as follows: The background to EIS implementation is given. EIS research studies undertaken in South Africa are then described. This is followed by a brief discussion of the previous EIS research. Some future research directions for EIS are then suggested.

BACKGROUND TO EIS IMPLEMENTATION

A number of possible indicators for a successful information system (IS) have been suggested in various implementation studies - see, for example, Laudon and Laudon (1998). The definition of implementation includes the concept of success or failure. Implementation is a vital step in ensuring the success of new ISs.

The EIS implementation process is defined as the process used to construct an EIS in an effective manner (Srivihok, 1998). Different factors have been suggested by various researchers as influencing successful EIS implementation - see, for example, Rainer and Watson (1995). However, there is no agreement on which factors play key roles in EIS implementation. A large number of success factors have been repeatedly suggested by practitioners and researchers, even though empirical studies on the success factors are rare. There thus exists "a need ... to document successful EIS development" and implementation (Papageorgiou & de Bruyn, 2011: p. 9).

EIS are high-risk application systems that are expensive to build and maintain (Strydom, 1994). For example, in October 1997 the largest water utility in South Africa, Rand Water, took a decision to build an EIS (based on Oracle® products) and invested ZAR4,5m in revamping its IT infrastructure to support that deployment. In the case of Rand Water, the organisation's EIS eventually played a major role in providing its executives with benchmarking information

helping them track Rand Water's overall performance against a set of objective criteria. In organisations such as Rand Water, an EIS can therefore assist "in the decision-making process" and be of "added value to their business" (Papageorgiou & de Bruyn, 2011: p. 9).

EIS are found in many organisations in South Africa. For example, in a recent survey by Papageorgiou and de Bruyn (2011: p. 7), these researchers report the existence of EIS in 25 listed Johannesburg Stock Exchange (JSE) organisations and the existence of 13 listed JSE organisations which plan to implement EIS.

EIS RESEARCH UNDERTAKEN IN SOUTH AFRICA

A review of previously conducted EIS research at universities in South Africa is undertaken. From this collection, the nature of EIS research for each study is discussed. South African databases were searched for research literature (in the form of essays, technical reports, thesis, dissertations) with the keywords 'Executive Information Systems' in the research title. Eleven successful 'hits' were found. Those research articles are reflected in chronological publication sequence in Table 1. The existence of a recent journal article (Papageorgiou & de Bruyn, 2011) dealing with EIS in listed JSE organisations is acknowledged but for the sake of selection consistency, this journal article does not fall within the ambit of the author's chosen report type classification.

The nature of each of the above eleven EIS studies in South Africa is now briefly discussed.

Researcher No 1: Design and Implementation of Executive Information System (EISs)

DeWitt (1992) discusses critical success factors (CSFs) for EIS development and states that the type of EIS for an organisation will depend on the information requirements of the organisation. It should be driven by the CSFs that are unique to a particular business. From previous studies, DeWitt (1992) identifies nine CSFs for an EIS (see Table 2) and notes that there "are

differences of opinion in the literature regarding the selection of the right technology" as a CSF.

This study was undertaken with sixteen large Cape Town companies from various industry sectors. The findings from Watson's international survey (Watson, Rainer & Koh, 1991) were compared against the local (South Africa) survey findings. The findings indicate (1) congruences between the literature search and survey findings; (2) major conflicting results between the local survey, the international survey and literature search; and (3) major problems encountered in developing EIS.

Researchers No 2: An Assessment of the Penetration of Executive Information Systems

Twemlow, Hoffmann and Erlank (1992) carried out an exploratory study that showed the extent of EIS penetration in South Africa. The sample (61 companies) was selected from the 1992 *Financial Mail* (a reputable weekly financial publication) survey of 'top' companies in South Africa. The research instrument was designed to evaluate EIS as a significant business trend, the extent of penetration of this trend in the organisation and perceived impact on the business. From these researchers' findings, the problems experienced by companies during the implementation and use of their EIS is reflected in Table 3.

Twemlow *et al.*, (1992) suggest that even though studies have been performed to determine the nature of executive work and their information requirements, there is still uncertainty in this area. Twemlow *et al.*, (1992) note that "it is not surprising" that the first two out of the top four problems associated with EIS implementation were concerned with the complex and changing executive information needs.

Researcher No 3: Executive Information Systems: A Fundamental Approach

Strydom's (1994) research investigated the problems concerning EIS "from a fundamental research perspective." Based on the results of the research

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