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Key Issues in the Design and Development of Global EIS

Anil Kumar

Fogelman College of Business and Economics, University of Memphis

Parashant Palvia

Fogelman College of Business and Economics, University of Memphis, palviap@cc.memphis.edu

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Key Issues in the Design and Development of Global EIS

Authors:

Anil Kumar

[Prashant Palvia](#)

Dept. of MIS/DS

Fogelman College of Business and Economics

The University of Memphis

Memphis, TN 38152, USA

Phone #: (901) 678-3569

Email: palviap@cc.memphis.edu

Introduction:

Executive Information systems currently being used by executives in global organizations ignore the dimensions of the international environment. As businesses become global senior executives need to access information which is global in nature, in addition to monitoring domestic information. What is needed is a system that enables senior executives working in a global organization, to access internal and external information (domestic and international), to support their analysis and decision-making tasks. We define such a system as a global executive information system (Global EIS). In this paper an attempt is made to address the following research question:

- What are the key issues in the design and development of a Global EIS?

Background:

Executive information systems are a relatively new development in MIS. The advent of executive information systems in the late 70s and early 80s promised to provide support for executives, with little computing skills required of users. Today executive information systems are one of the fastest growing applications in U.S. organizations. Turban (1995) highlights the growth of EISs in the 1980s. He points out that by 1986 one-third of the large U.S. corporations were using EISs and the figure had risen to 50% in 1989.

Global executive information systems is a relatively new area of research and not much work has been done in this area. Palvia et. al. (1995) conducted an exploratory study which identifies the types of information required by executives in a global EIS, the current level of use of such information, and the sources of such information. Watson (1995) points out that it would be interesting to study the differences in EIS practices in different countries and compare international EISs with those that are strictly domestic. Eom (1994) describes transnational management support systems (TMSS) as a type of global decision-making system. Min and Eom (1994) also talks about developing an integrated decision support system (IDSS) for handling the complexities and the uncertainties of global logistics operations.

Methodology:

To identify the key issues in the design and development of global executive information systems we used case studies. These case studies were primarily exploratory in nature. The objective of these case studies was to formulate research propositions for the study of global executive information systems. The case studies were conducted in five different companies based in Memphis, New York, and Los Angeles. Of the five companies used for the case study, four are U.S. based global organizations and one is a Japanese company. The companies used in the study represent a variety of industries ,i.e., banking, entertainment, automobile, transportation and paper. Companies from both the service and manufacturing industry were included for the study. The companies for the study were not selected randomly. The selection of companies was based on the ability to gain access to senior management of the company. Every company used in the study has operations in at least two countries, i.e., home country and outside.

Senior information systems executives (e.g. CIO, VP-Information systems etc.) were interviewed to elicit information for the case studies. Care was taken to ensure that the executives interviewed were involved with international IS projects and executive information systems projects in their respective companies. An open ended questionnaire was used for these case studies.

Results:

This paper discusses partial results from a study being conducted on global executive information systems. The case studies conducted for proposition development resulted in 34 propositions and several research questions. These propositions and research questions are categorized into several environmental variables, namely, international environment, national environment and the organizational environment. This paper discusses some of the propositions that are relevant for the study of global EIS within the context of the international environment of a company.

International Environment: The international environment of a company identifies the forces that are unique to different countries. Deans and Ricks (1991) categorize these forces into four dimensions, namely, social/cultural, technological, political/legal and economic (see figure). In the following paragraphs, we list the research propositions that describe the issues in the design and development of global EIS.

Social/cultural: The design and development of a global EIS needs the commitment of the top management. It becomes important that top management (located at headquarters and subsidiaries) understand the role of information technology. The success of the system development could depend to a large extent on the awareness of these executives.

Proposition 1: The greater the level of executive awareness (education) of the potential use of information technology in different countries (especially developing) the greater will be the diffusion of a global executive information system in a global organization.

The power distance norm (Hofstede, 1980), shows the differences in cultures with respect to the distribution of power of members in an organization and societies in different parts of the world. Our second proposition reflects the impact of the power distance norm on the design and development of a global EIS.

Proposition 2: Information technology (i.e. global EIS) that might be perceived to

introduce significant changes in the distribution of power and status of executives in an organization, located in countries that emphasize power distance, is least likely to be effectively used.

Technological: A system that is designed and developed in the United States may not be usable in subsidiaries of an organization, due to lack of technological infrastructure in different parts of the world. Organizations need to consider the infrastructure availability in different parts of the world before committing resources to develop a global EIS.

Proposition 3: The better the information technology infrastructure availability and sophistication in a country is, the greater the chances of success for information technology (i.e. global EIS) usage by executives in global organizations operating in such countries.

Political/legal: All respondents were of the opinion that the political conditions existing in different parts of the world would have no impact on the design and development of a global EIS. The extent of regulations imposed by nations on transborder flows, usage of certain types of telecommunications equipment, and the acquisition of hardware & software would have an impact. This leads us to our fourth proposition that:

Proposition 4: The greater the extent of regulations (restrictions) imposed on transborder dataflows, acquisition of hardware and software, and the usage of certain telecommunications equipment by nations, the least effective will be the diffusion/usage of information technologies (i.e. global EIS) in a global organization operating in these nations.

Economic: The volatility of the economic environment in different parts of the world and the currency restrictions imposed by nations on purchase of technology were the two main issues of importance as raised by respondents. The following propositions reflect these issues.

Proposition 5: The more stable the national economic infrastructure of a country is, where a global organization operates, the more effective will be the usage of information technologies (i.e. global EIS) by executives in global organizations.

Proposition 6: The greater the exchange (currency) restrictions imposed on the purchase of technological equipment in a country, the least likely will be the usage of information technology (i.e. global EIS) by executives working in that country.

The propositions that are discussed above are currently being verified using a questionnaire. This questionnaire will be mailed to global companies based in the U.S. The mail survey is comprised of two parts: a pilot and a full fledged study. At the time of submission of this paper the pilot study is being conducted.

Conclusion:

The results of the case studies presented in this paper provide researchers with a foundation for conducting research in the area of global executive information systems. This paper is perhaps the first attempt to address the research question listed earlier. Existing research has addressed the key issues in international information systems but no previous comprehensive study exists in the area of global executive information systems.

It is expected that some data will be available regarding the propositions at the time of paper presentation.

References available upon request.