

# A Conceptualized Framework for Planning Organizational Information System

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## Abstract

*The successful implementation of organization's information systems (IS) solely depends on effective planning for those information systems. This means that the failure or success of Organization's Information System depends much on the ability for the stakeholders to plan those Information Systems well; therefore improved IS planning is one of the critical issues facing IS executives today. Effective IS planning can help organizations use IT to reach business goals. It can also enable organizations to use IT to significantly impact their strategies. However, if you don't carry out IS planning carefully; the results will include both lost opportunities and the waste of expensive IT resources. In order to perform IS planning effectively, organizations apply one of several IS planning methodologies. The main idea that the researcher seeks to address is to come out with a holistic methodology that can be used in Planning Organizational Information Systems.*

**Keywords:** IS Planning, Methodologies, Selection, analyzing, Information Systems, Holistic Framework.

## 1. Introduction

Information Systems (IS) planning, according to Finnegan and Fahy (1993) is "a broadly based management activity that provides direction within an organizational setting for the development and use of information systems and technology. Thus, IS planning explains how the Information System would be developed to support organizational activities, usage of Information System within the organizational settings as well as the technology to support these organizational activities. It means therefore that effective IS planning process determines where an organization is going and how the organization establish a link between the organizational goals and their Information Systems. An IS plan provides an opportunity for an organization to exploit rapidly advancing information technology. However, in the IS planning process the initial problems normally encounter by the

IS planners is the selection of IS planning methodology to use for a particular organization based on the organizational goals and objectives. The success of IS Planning mainly based on the selection of one or more IS planning methodologies' that will assist IS planners in their mission. This means that the main fulcrum that contributes to the success of IS planning is the ability for the IS planner to select the appropriate IS Planning methodology for the job. It has been observed recently that a number of IS planning methodologies have been proffered which has generated confusion, not only concerning which methodology to use, but also what methodologies are being offered.

In view of this the research seeks to come out with a holistic framework that can be used in Planning Organizational Information Systems.

## 2. Literature Review

It can be observed from documentation that almost all the IS planning methodologies geared towards or derived their methodologies from the levels in IS planning activities. It means therefore that to come out with IS planning methodology one should understand the levels in IS planning activities. Anthony (1965) **conceptualized**

the levels of IS planning activities across three hierarchical levels:

- Strategic Planning
- Management Control
- Operational Control

Again, Davis and Olson (1985) **conceptualized** the levels of IS planning activities across Four hierarchical levels. In their model the top three levels mainly corresponds to Anthony's model with additional level of scheduling and planning. Table 1-1 gives comparison of Anthony (1965) and Davis and Olson (1985) models of the levels of IS planning activities.

**Table 1-1: Anthony (1965) and Davis and Olson (1985) models compared**

Levels of Planning	Anthony's Framework	Explanation
Strategic Planning	Same	A set of long-range goals that describe the IT architecture and major IT initiatives needed to

		achieve the goals of the organization.
Tactical Planning	Management Control	Physical implementation of the strategic plans. This includes reflected in capital expenditure budget and long-range staffing plan in the organization.
Operational planning	Operational Control	It deals with allocation of tasks to each organizational Planning Control unit in order to achieve objectives of management control.

scheduling and planning	-	Assign specific units of organizational and Dispatching activity to achieve operational objectives.
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### IS Strategic Planning

The major component of IS planning is the IS strategic plan of the organization. This means that before one can formulate an organization's IS planning very well there is the need also to consider the organization's IS strategic plan since it is the IS Strategic plan that can give you the description of IT architecture and major IT's initiatives and method of implementation. Finnegan and Fahy defined IS Strategic plan as a set of long-range goals that describe the IT architecture and major IT initiatives needed to achieve the goals of the organization. According to them the IS strategic plan of every organization must meet three objectives:

- It must be aligned with the organization's strategic plan

- It must provide for an IT architecture that enables users, applications, and databases to be seamlessly networked and integrated.
- It must efficiently allocate IS development resources among competing projects, so the projects can be completed on time, within budget, and have the required functionality.

Again, in the formulation of IS strategic Plan Rowe, Mason and Dickel (1982) identified three key tasks in developing an effective strategy which include the following:

- Identify a distinctive competence for the organization. A distinctive competence is something the organization does particularly well. It refers to the organizations' unique resources and capabilities for conducting its business, and describes its strengths and its ability to overcome its weaknesses.
- Find a niche in the organizations' environment. A niche is a social and economic situation for which the organization is well suited. An effective niche is one that positions the organization in such a way that it can take advantage of the opportunities that present themselves and avert threats from the environment.

- Find the best match between the organizations' distinctive competencies and its available niches.

### Management Control

After the formulation of the IS Strategic plan there is need to physically implementation of the strategic plans. This includes reflected in capital expenditure budget and long-range staffing plan in the organization.

### Operational Control

Identification of IS and IT details of the ISs to support those business processes and the underlying IT infrastructure are analyzed and a development plan is decided. It deals with allocation of tasks to each organizational **Planning** Control unit in order to achieve objectives of management control.

Based on Anthony's model, Bowman, et.al. (1983) also came out with three generic planning activities as:

- **Strategic IS planning:** establishing the relationship between the overall organizational plan and the **IS** plan.
- **Organizational information requirements analysis:** identifying broad, organizational information requirements to establish a strategic

information architecture that can be used to direct specific application system development project.

- **Resource allocation:** allocating both IS application development resources and operational resources.

### 3. Methodology

In order to come out with a new IS planning methodology there is the need to know some of the drawbacks of the existing IS planning methodologies. The IS planning methodologies considered in this research work include Earl's Multiple methodology, Business System planning (BSP) and Critical Success Factor (CSF).

#### Population

The population of this research consisted of IT professionals selected at FIVE regions in Ghana. The reason for including only five regions was to delimit the study and minimize certain differences that could emerge due to socio-economic and ethnic differences of the IT professionals. The total population of was five hundred IT professionals (500).

#### Sample Techniques

In this study the sampling techniques used was Stratified Sampling techniques. This method is used when the parent population

or sampling frame is made up of sub-sets of known size. These sub-sets make up different proportions of the total, and therefore sampling should be stratified to ensure that results are proportional and representative of the whole. The reason why this sampling technique was appropriate for this study is to get the IS planning professionals who are in the teaching field and also practicing in the IT industries as well as those who are only in the industries.

#### Sample Size

As the sample was selected by stratified sample technique; two strata of IT personnel were made. One of the strata constitutes those IS planning professionals who are in the teaching field and also practicing in the IT industries as well as those who are only in the industries. In view of this a sample size of three hundred and eighty (380) was obtained for the study which constitutes 76% of the total population for the study.

**Table 1– 2: Sample size of IT Professionals obtained from Five Regions of Ghana**

S/N	Region	Number of IT Professionals
1	Ashanti	100
2	Brong-Ahafo	86

3	Eastern	60
4	Central	72
5	Western	62
<b>Total</b>		<b>380</b>

### Instrument for the Study

In order to obtain the data for the study two sets of instruments were used. The two instruments used in the study include:

- Questionnaire (Demographic Form)
- Interview

### 4. Results

Upon thoroughly consideration of the results from the respondents the researcher summarized the IS planning activities across Five levels as outlined in table 1-3. If an item is marked with a 'C' it means the component of the methodology considers the level of IS planning activities, item marked with a 'P' is partial fulfillment of level of IS planning activities and finally if item is not marked it means it does not consider the level of IS planning activities.

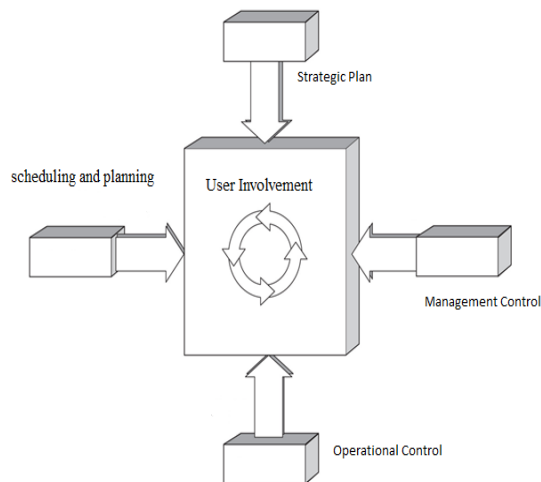
**Table 1– 3: IS Planning Methodologies and Levels they Considered**

IS planning Activity	IS Planning Methodology		
	Earl's Multiple Methodology	Business System Planning (BSP)	Critical Success Factors (CSF)
Strategic Plan	P	P	C
Management Plan	P	C	C
Operational Plan	C	C	C
Scheduling and Planning	-	-	-
User Involvement	C	-	-

### New IS Planning Methodology (Proposed Framework)

Upon thoroughly consideration of all the drawbacks identified in all the three IS planning methodologies researcher came out with the following framework that can be used by IT Professionals in Planning

Information Systems. Figure 1-1 gives the proposed IS planning methodology:



**Figure 1-1: proposed IS planning methodology:**

### User Involvement

The involvement of users in information systems development, whether it is to design new systems or to modify existing ones, is held to be one of the most important factors influencing implementation success or failure (Mumford & Weir, 1979). There is the need to place the users at the central part in the planning process.

### Strategic Plan

Establishing the relationship between the overall organizational plan and the IS plan.

### Management Control

This deals with physical implementation of the strategic plan. This includes reflected in

capital expenditure budget and long-range staffing plan in the organization.

### Operational Control

Identification of IS and IT details of the ISs to support those business processes and the underlying IT infrastructure are analyzed and a development plan is decided.

### Scheduling and Planning

Decomposition of organizational functional areas into its designated positions to achieve organizational objectives

### References

- i. Alter, S. 2007. Information systems. Prentice-Hall, Inc.
- ii. Anthony, R.N. (1965), *Planning and Control Systems: A Framework for Analysis*, Harvar University Press
- iii. Anthony, R.N.(1988), *The Management Control Function*, Harvard Business School Press, 1988.
- iv. Badow, J.F.(1990), "Putting Information Systems Planning Methodologies Into Perspective, *Journal of Systems Management*, v. 41, n. 7, pp. 6-9

- v. Banett, **S.S.**, and Konsynski, B.R. (1982), "Inter-Organization Information Sharing Systems," *MIS Quarterly*, v. **6**, n. **5**, pp.93-105
- vi. Benbasat, **I.**, Dexter, **A. S.**, Drury, D.H. and Goldstein, R.C.(1985), "A Critique of the Stage Hypothesis: Theory and Empirical Evidence," *Communications of the ACM*, v. **27**, n. **5**, pp. 476-485,
- vii. Bowman, B., Davis, **G.B.** and Wetherbe, **J.C.** (1983), "Three Stage Model of **MIS** Planning," *Information and Management*, v.6, n.1, pp. **11-25**,
- viii. Cash, **J.I.**, McFarlan, W.F., McKenney, **J.L.** and Vitale, M.R.,1999, *Corporate Information Systems Management: Text and Cases*, Second Edition, R.D. Irwin,
- ix. Davis, G.B. and Olson, M.H. 2005, *Management Information Systems: Conceptual Foundations, Structure, and Development*, Second Edition, McGraw-Hill.
- x. Forouzan, B. A. 2004. Data communication and networking. McGraw Hill, Inc.
- xi. Halsall, F. 2005. Computing networking and the Internet. Addison-Wesley, Inc.
- xii. Laudon, K. C., & Laudon, J. P. 2007. Essentials of management information systems. Prentice-Hall, Inc.
- xiii. Meyer, M., & R. Baber. 2000. Computer in your future. Que Publication.
- xiv. Stallings, W. 2003. Computer organization and architecture. Prentice-Hall, Inc.
- xv. Sommerville, I. 2001. Software engineering (6th ed.). Addison-Wesley, Inc.
- xvi. Tanenbaum, A. S. 2006. Structured computer organization. Prentice-Hall, Inc.
- xvii. Turban, E., Rainer, R. K., & Potter, R. E. 2005. Introduction to information technology. John Wiley & Sons, Inc.
- xviii. Wang, P. S. 1988. An introduction to Berkeley UNIX. Thompson Organization.