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Evolving Roles of a System Analyst in the Contemporary Society for Organizational Growth

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Abstract:- Without system Analysis, there won't be system development, inadvertently without proper system development plan for a new system or upgrade of an old system, the organizational growth may be hindered. System analysis is normally done by a person known as the System Analyst. This role has been evolving and it encompasses many sub-units that makes it unique. Though the title "System Analyst" is ambiguous, its roles are not farfetched from real world implementation of an optimal system for organizational growth. Most organizations in all sectors; commerce, not-for-profit, and government are now fundamentally dependent on their information systems (IS) and information technology (IT). The boom in the penetration to virtually all the industries creates an increasing demand for a system Analyst. A System Analyst can also be referred to as Project Managers in some instances while they have some other descriptions in other instances depending on the organizational behavior and construct. This paper follows a descriptive research approach. The authors explore the pervasive and generic roles of a system Analyst as regards Information System. In as much as the name "System analyst" seems ambiguous, their roles thereof needs to be taking cognizance of, for better context, usage and accordance of proper respect. It is recommended that stakeholders in the field Information Technology, and other Engineering fields accords and recognizes the emerging role of a system analyst in order to optimally represent or implement projects.

Keywords:- *Information System, System Analyst, Project Manager, Organizational Growth.*

I. INTRODUCTION

Organizational growth can be referred to as an upward movement of an organization or a forward movement of a statistical data while quantifying the progress made by the organization (Williamson, Hoenderopb & Jochem, 2017). One of the determinants of growth in an organization is good system analysis which is the job description of a System analyst. According to Parthasarathy (2013) in a publication titled "Who can be a good system Analyst", he differentiated a Systems Analyst as an individual who performs the systems investigation as distinct from those merely involved in the detailed computer programming. A systems analyst is a title that has some elements of ambiguity. It is normally used to describe everyone from strategist, change agent, programmer, consultants, project Manager, to team leader. The role of the systems analyst is changing every day. People that occupy the position of a systems analysts knows more about businesses than users know more about computing technology (Senn,1989). In the 1990s, literature reviews suggested that there will be a difference compared to that of the 1980s, in that, the technological focus will not be on hardware usage, but on information access (Straub and Wetherbe, 1989). But more recently the roles have been evolving dynamically, whereby, it is more focused on delivery rather than having a specific orientation. The study did not begin in this century, but this paper adds flavour as it captures more current perception in the field. According Christensson (2007), a System analyst is a person who configures and selects computer systems for an organization or business. His/her job description typically begins with the determination of the intended purpose of the information system. This means that the system analyst must understand the nitty gritty and the general objectives of the business, as well as what each employee's job requires. Business Dictionary (businessdictionary.com) views a system analyst as a problem solver in charge of designing, selecting, planning, modifying or analysing various systems to ensure compatibility and user effectiveness. In 1988, Wetherbe posited that the systems analyst must also possess strong interpersonal skills instead of only having technical skills and business understanding. Work in this area includes research on the evolving role of the systems analyst and the complication of explicitly defining what the role of a systems analyst is (Dance, 1976; Addlemen, 1976; Ho, 1976). The perceived importance of the role of a system analyst has being researched for decades. Researchers studied job skills and roles (Scharer, 1982; Green, 1989). While Green was looking at the perception each group possesses towards the job function in the process of surveying users and systems analysts, comparisons were also made about users and system analysts who worked in various teams involved with the system development and design (Kaiser and Bostrom, 1982). This area that Kaiser and Green surveyed is more relevant to this paper because, according to Green (1989), it led to the development of the activity list. Conducted research studies from the 1980s to the 1990s sought to learn more about the psychology, evaluation, and the succinct skills of the systems analyst. Furthermore, Guimaraes (1980) also sought to develop skills hierarchy for the systems analysts where he provided a starting point for developing lists of critical skills. Skill requirements based on employment

matching and subjective management perspectives were presented by Cheney and Lyon (1980). A systems analyst as stated earlier has some elements of ambiguity in its definition. In-spite its ambiguity, this term comes closest to defining the user (or users) who play the most important role in the systems development life cycle, and also has the ultimate responsibility of overseeing the system project from its earlier stages to maintenance. Although the title of a systems analyst wasn't popularised as at the time computer technology came on board, those involved in developing computer applications immediately recognized the need for such person and implemented it. A lot of energy was directed initially towards the creation of early computers when the role of a systems analyst wasn't popular. With time, individuals and large organizations became more demanding in terms of what the specific task the system performs, how the system performs the task, and who decides how the system would operate as well as in what time frame the system operates. Because of this need, the title of systems analyst became critically important in the development and use of Information systems. Today, as many school of taught and organizations understands the serious need for a system analyst, there is almost unanimous support for hiring them to successfully develop information systems.

II. METHODOLOGY

The paper adopts descriptive approach and seeks to outline all the emerging roles of a system analyst in an organization. The authors also made use of secondary data to buttress the main point. This study also describes the various aspects of the system analysis, the traits of a good system analyst and also the evolving roles of an analysts which is geared towards organizational growth.

A. System:

The term System has over the years, received increased amount of attention from researchers in several fields of Information Technology and other disciplines. Till date, however, definition has been an issue and was approached in a descriptive rather than an analytic way. To quote von Bertalanffy (in Miller 1965), "A system is a set of units with relationships amongst them, and each of the relations (sometimes called subsystems) is hierarchic in structure until we reach some lowest level of elementary subsystem". In his exposition on general systems theory, Miller (1965) proposed that "The universe contains a hierarchy of systems, each higher level is composed of systems or elements of low levels". This sentiment has been echoed by Simons' (in Miller 1965) description: "By a hierarchic system, it means a system that is composed of inter-related subsystems, each of the latter being hierarchic in structure until some lowest level of elementary subsystem is reached". On the other hand, McConnell (1977) states, "Anything that is in itself alive or that is made up of living things can be thought of as a living system. We are alive; so we are living systems. Most recent definition of a system doesn't differ much as it also contains the overall ingredients described by Bertalanffy, Miller and McConnell.

B. System Analysis

System analysis is done on all systems that wants to perform optimally. This term is not always seeing as an option in any field of life but a necessity. It is applied in all fields, without restriction to computational technology. According to Valacich, et. al. (2014), Systems analysis is part and parcel of the systems development life cycle in which you determine how a current information system in an organization works. Then you assess what users would like to see in a new system. The two parts to the analysis are determining requirements and structuring requirements. The two parts are addressed as two separate steps, but it is important to note that they are parallel and repetitive Valacich (2014). For example, as you determine some aspects of the current and desired system(s), you begin to structure these requirements or to build prototypes to show users how a system might behave. Inconsistencies and deficiencies discovered through structuring and prototyping leads you to explore further the operation of the current system(s) and the future needs of the organization. Eventually your ideas and discoveries meet on a thorough and accurate depiction of current operations and the requirements for the new system. Also in the publication titled "Requirements Determination and Requirements Structuring", the author (Zhu, 2003), stressed that, the techniques used in requirements determination have become more structured over time. The methods to be chosen depends mainly on the problem to be addressed by the organization. Below are few of the methods that can be applied:

- ✓ Joint application design (JAD)
- ✓ Prototyping

- *Traits of a Good Analyst In Determining Requirements:*

In many ways, gathering system requirements is like conducting investigation. Just like solving puzzles, the characteristics that a good system analyst during requirements determination, is the same as enjoying solving puzzles. These characteristics include:

- ✓ *Impertinence:* The analyst should question everything.
  1. "Are all transactions processed same way?"
  2. "Is it possible not to charge a standard prize per person?"
  3. "Is it possible that someday we can allow and encourage employees to work for more than one department?"
- ✓ *Impartiality:* The analyst's role is to find the optimal solution to the problems or opportunities resident within the organization. Rather than, for example, finding a way to justify the purchase of a new resource or to insist on incorporating what users think they want into the new system. He/she (the system Analyst) must consider problems raised by all parties and try to finding the best organizational solution.
- ✓ *Relaxation of constraints:* Here it is assumed that anything is possible, therefore, any infeasibility is eliminated. For example, a good analyst does not accept statements like: "this is always how we do it, so we have to continue the

thread the same path." Traditions are different from rules and policies. Traditions probably started for a good reason, but as the organization and its environment changes or grows, they may turn into habits rather than sensible procedures.

- ✓ *Attention to details:* All facts(information) must fit within organizational scope. One element out of place means that the system will fail in the nearest future. For example, an imprecise definition of who a customer is, may mean that you purge customer data when a customer has no active orders; yet these past customers may be vital contacts for future sales.
- ✓ *Reframing:* Analysis is not restricted to numbers, because in part, it's a creative process. The analyst must challenge him/herself to look at the organization in new ways. Consider how each user views their requirements. The analysts should be careful not to jump to conclusions like: "I worked on a system like that once, therefore, the new system must work the same way the former one worked."

C. Roles of a System Analyst

For clarifications, we will outline the roles of systems analysts in a systemic way in this paper. Roles are listed to depict the evolving principle. Human contexts are described for each of the roles. Unlike former studies, a post-hoc analysis was done in order to develop the various roles. The role name was created to reflect the activities within the definition and functions of a system analyst.

- *Project Manager:*

The project manager is a systems analyst with a diverse set of skills like leadership, technical, management, and customer relationship, who is responsible for initiating, planning, executing, and closing down a project (Valacich, et. al., 2014). The environment of a project manager always changes as well as the problem solving strategy. Understanding the project management process is key to its function as a system analyst. Some of the duties of a Project Manager are outlined below.

- ✓ Planning and scheduling the various activities needed in the system development
- ✓ Organizing the various schedules outlined
- ✓ Leading the project team
- ✓ Controlling the resources provided for the project

- *Communicator:*

Communicating can be easy, but communicating well takes a certain set of skills (DeMers, 2014). Positive information exchange is a skill that not everyone exhibits. It is always very important that a Systems analyst masters the art of communication. Systems analysts in any field should maintain good human relations with the highest frequencies for all three human contexts. This role appears to agree with other studies (Green, 1989; Leitheiser, 1992). The role of communicator has increased in importance when compared with earlier studies (Cheney, 1980; Bryant 1976). According the DeMers (2014) in an article published on forbes titled "7 things good communicators do", below is the list of what great communicators always do;

- ✓ Get personal and direct
- ✓ Represent real facts
- ✓ Be specific
- ✓ Ask relevant questions
- ✓ Ask for clarifications based on the questions asked
- ✓ Listen and listen!

- *Agent of Change:*

We have agents of change in all organizations and the system analyst, fits the description whether internal or external. An analyst is an agent of change whenever he performs any of the activities in the SDLC. An agent of change can be defined as a person who serves as a catalyst for change, develops plan for change, and works with other arms in the organization in facilitating that change. Their presence in the critical state changes the atmosphere. A system analyst needs to recognize this while moving on with his task. Hence he must interact with users and management from the very beginning of the project. Without the help of the users and management, the system's analyst won't be able to understand the business in full and might not affect the necessary change needed. The activities carried out by the change agents includes:

- ✓ Investigating current system
- ✓ Checking for discrepancies or loopholes
- ✓ Surveying other organizations that does similar business
- ✓ Match survey with the industry's current trends
- ✓ Outline the necessary changes needed to be applied

- *Developer:*

Developers are most times regarded as people that sits down to write codes, but it is much more than that, in that a developer builds and creates applications by following the SDLC process. Leitheiser (1992) is quoted as saying that "MIS managers rated the programming role as extremely important". The list of activities performed by a developer includes but not limited to:

- ✓ Design and write(code) applications
- ✓ Develop diagrams and flow charts for the computer operation processes.
- ✓ Develop, test and analyse programming applications.
- ✓ Determine, develop and document software specifications.
- ✓ Analyse and debug software errors.
- ✓ Upgrade or offer patches to existing computer system applications.
- ✓ Develop technical documentation to support application maintenance.
- ✓ Support programmers to conceptualize and develop new software programs.
- ✓ Plan the software development lifecycle phases.
- ✓ Prepare and document software specifications and requirements.
- ✓ Research and document software users' requirements.

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- ✓ Guide the re-engineering of applications based on customer requests.

This activity requires the systems analyst to work well independently as well as with others. Green's research in 1989 has it that users regard the programmer's role as more important than the analyst role.

- *Analyst:*

An analyst is a person who reviews and examines data or information for a specific area or niche. Sayani's predictions appears to have come true. Sayani (1976) predicted that systems analysts would have to concentrate even more strongly on the front-end of the life cycle and that their role with the user will have to be strengthened. The analysts worked individually, but their activities also included close relationships with MIS/Peers, Users, and Group/Team members. The activities in this group were associated with traditional systems analysis activities' including:

- ✓ Analyse existing systems.
- ✓ Gathers data relevant to the business.
- ✓ Interprets the data gathered.
- ✓ Produces a report based on the interpretation.

The systems analyst role defined within a group context verifies the high importance the analyst places on human relations skills.

- *Technician:*

According to Investopedia.com (2018), this role can also be regarded as technical analyst. Technicians believe that short-term price movements are the result of supply and demand forces in the market for a given security and therefore, analyses investments based on past market prices and technical indicators. The activities associated with this role included high frequency individual activity and lower frequency MIS/Peer activity. This role implies that the individual spends a great deal of time alone, but also works either in tandem or has work confirmed by peers. Activities include:

- ✓ Prepare test programmes and ensures proper implementation
- ✓ Prepare reports
- ✓ Communicate test status and results to clients
- ✓ Liaise with the regulatory bodies when required

The role of a technician includes several systems design activities along with other activities such as learning how new hardware works and as well as the software which may support systems design. The unique combination of activities places the systems analyst firmly in an MIS professional context.

- *Supporting Expert:*

The systems analyst also can be a supporting expert within a business. This role involves expertise in supporting critical business systems. This person will perform system programming and support to maintain functionality. As a key member of the technical team who has a specialty, he/she normally brings fresh ideas to support business growth. In this role, the analyst draws on professional expertise concerning computer hardware and software and their uses in the business. The work is not often a full systems project, but rather modification of an existing system or upgrade.

- *Strategist:*

Also called Strategy Analysts. They research and analyse industry trends in order to determine how best to optimize a business. They work closely with the cash management department on pricing and new product roll outs, and analysing the profit and loss of debit and credit cards using a variety of financial reports and internal databases. Activities in this category include:

- ✓ Creating new data modelling techniques and analyse large amounts of data
- ✓ Develop sales tools by working with the Leadership team
- ✓ Develop promotional guidelines to help manage trade budget
- ✓ Coordinate strategic analysis of the firm's geographic expansion initiative
- ✓ Develop and manage a project enabling the firm to capture and utilize industry information on their client base for the purposes of business development
- ✓ Manage the selection, implementation and training of a firm's contact management system
- ✓ Create and implement a budget variance reporting system
- ✓ Support practice group strategic plans through structured analysis and research
- ✓ Provide analysis to executive management and practice group leaders
- ✓ Provide ad-hoc analysis for upper management utilizing Data Warehouse
- ✓ Analyse historical revenue data trends
- ✓ Leverage data mining software to run queries for forecasting

- *Consultant:*

The system analyst often acts as a consultant, and may be hired specifically to address information system's issues within a business. Such recruitment will always result positively in the organizational structure because outside consultants can bring expertise from the field, fresh or new ideas and perspectives not easily perceived within the organization. The consultant's main role is to assist the organization achieve a positive return on investment through his involvement in certain areas of inclusiveness. While the consultant may act as a catalyst, a resource, or a facilitator for critical changes to occur, the leadership of the process remains within your organization. As a consultant, he/she will have to rely heavily on the systemic methods embedded throughout the organizational structure. It is important to note that analysts as a group performs these activities less often. The activities which define this role are:

- ✓ Overall Guidance during the SDLC
- ✓ Information Gathering within and outside the organization
- ✓ Cultural Competency/Diversity Training
- ✓ Evaluation of the system.

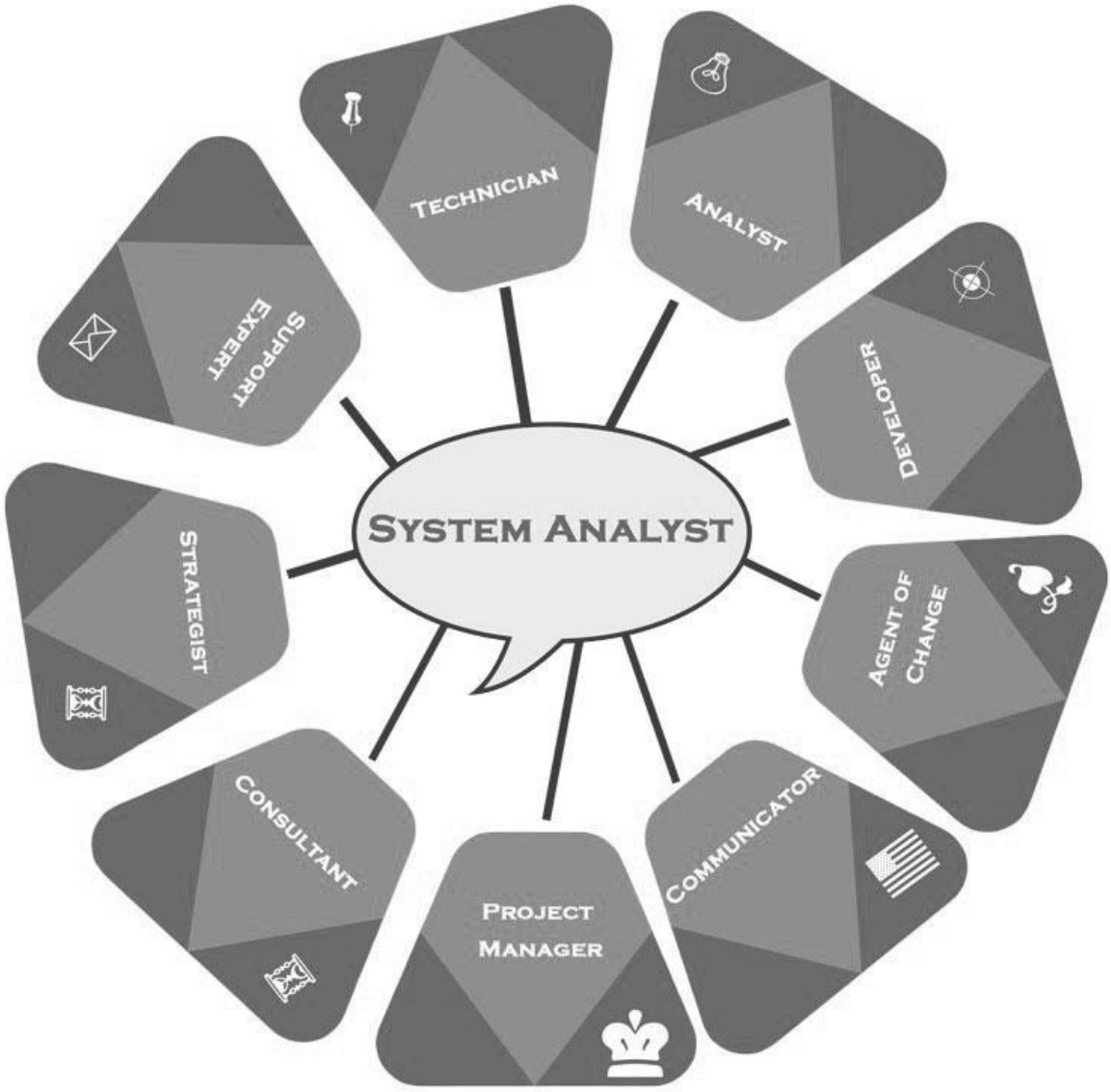

Fig 1:- Evolving Role of a system analyst for organizational growth

III. CONCLUSION

A system Analyst has been viewed from a myopic stand point for centuries since inception. It is clear from this paper that a system analyst is more than just a person that sorts out a range of files or someone restricted to computer systems. From the managerial perspective a system analyst is a project Manager though Engineering professionals argues to the contrary, checking the daily activities achieved by a system analyst gives the better judgement.

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