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Research Article

Supporting the University Administration through Innovations: The Roles of a System Analyst

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Abstract

The roles of the systems analyst remain essential to the backbone of universities in delivering successful administration through technologically powered developments. In recent years, the nature of systems analysts' activities and work environment has changed dramatically, especially in the administration and growth of the university system. This study would look at the functions of a system analyst in assisting university administration. A more machine literate user culture, modern programs, advances, automation of different processes in the university, advancement of existing technology, and a shift toward cooperative systems growth have all led to these changes. The aim of this research is to identify the essential roles of a System Analyst in supporting the education sector through innovation. The goals are to assist line managers, executives, and other key administrators in the university community in using technology and technological advances to drive the structure. The frequency of selected systems analyst behaviors within the context of human relationships experienced by the systems analyst was used to clarify the functions of the systems analyst in this analysis. This paper will also go through how system analysts contribute to the growth of their organizations through proper research, design, production, and implementation. This research would be useful to key stakeholders, line managers, supervisors, executives, and others.

Keywords: Systems Analyst, Information Technology, Change Agent, System Development, Line Managers, Technology Utilization, Technology Innovations.

Background to the Study

University administration in the twenty-first century necessitates the implementation of inventions and technology to support teaching, learning, study, and growth. Advances in program creation, research criteria and technologies, human development, and technology support have paved the way for system analysts to identify their positions in supporting the business of education through innovation. Richard Boland and Heber MacWilliams (Richard Boland and Heber MacWilliams, 2020). To effectively leverage technological advances, information systems analysts need a specific skill set. Evidence from different organizations suggests that certain aspects of a systems analyst's career evolution can be attributed to the essence of both their expectations of the value of various job skills and their preferences for using their technical job skills. Some reports gathered from system analysts have also revealed that analysts collectively recognize that all capability dimensions explored are essential to their position to some extent. Systems analysts seem to view their position as a socio-technical feature and desire this functional duality, as they rank interpersonal skills and system creation skills significantly higher than political skills and knowledge, technology skills, and business task knowledge for both usage preferences and importance.

Overview of the Roles of System Analyst

A system analyst is in charge of evaluating, developing, and implementing programs to meet the needs of an organization. The Systems Analyst is critical in bringing the management information system online. However, as in many organisations, the position of the system analyst has evolved over time. The role of a system analyst has evolved from

observing, tracking, and organizing an organization's offline processes to using technology to drive organizational processes and ensuring that representatives of the organization become familiar with the different resources available to the organization.

The position of the analyst has evolved over time. A system analyst is now seen as a change agent in charge of adding value to an organization's investments in management information systems (that includes a heavy dose of information communication technology investment). A system analyst is described by Random House Dictionary as "a individual who performs a methodical analysis and evaluation of an operation such as business to establish its desired objectives in order to decide procedures by which these objectives can be achieved."

According to Fougere and Kenneth T. (1991), a company needs system analysts because line managers typically do not understand the types of information-based solutions that are available for their business problems. A system analyst fills this gap because he or she is well-versed in both enterprise structures and business processes. After studying the issue that the organization is facing, a system analyst is in a position to offer information system-based solutions to the organization. They are well-versed in both industry and technology. They investigate a business issue or opportunity and develop an information system-enabled solution for it by specifying the information system requirements. This collection of specifications is delivered by the analyst in a technical format that is easily understood by a technical (IT) expert. Since he has no knowledge of business processes, the technical expert cannot understand the business problem if it comes directly from the line managers. The system analyst then bridges the gap between the two by interpreting and converting the business problem/opportunity into an information systems solution and providing the design for such a system to the technologist, who can then take on the challenge and develop the actual system.

This will seem to be a simple mission, but it is not. In the majority of situations, the analyst serves as a change agent. When developing a solution, the analyst does not limit himself/herself to the current problem/opportunity, but also considers the future. This necessitates that an analyst propose certain improvements to the business process in order to increase productivity in the future. Inevitably, the process of developing an information systems-enabled solution is intertwined with the activity of business process reengineering, which introduces transition. The analyst takes advantage of the opportunity to provide a solution to bring about change and make the company more effective. As a result, a system analyst may also be thought of as a change agent.

As we mentioned in the previous section, the analyst's position encompasses both the business and technology domains. Furthermore, the analyst serves as a change agent, so the role of an analyst necessitates not only a thorough understanding of technological expertise but also of business and interpersonal skills.

2.0 Review of Related Literature

As a result of his personal experience with the computer engineers who responded to his call, computer scientist John McCarthy (2011) provided his personal opinion about System analyst. According to John McCarthy, System Analyst was present during the men's moon landing and recovery when their equipment collapsed. Regrettably, the social and political consequences are less clear. We may, however, pick out and criticize the entire approach taken by systems analysts, those change agents tasked with integrating their computer system into the host system-society. The systems analyst is desperately needed to establish an effective approach to impact this social integration, and nowhere is this need more pressing than in hospital systems. We are victims of the motorbike and side-car mentality in many areas of life in this computer age—we can get a cost-effective solution, but when those systems are applied, a less human environment results. This flaw is not inherent in technology; there are many examples of how technology has improved the quality of life and human contact; a successful telephone system can do this, and such standards are often used in camera advertisements. The conventional design approach built by the analyst must be challenged. He performs his duties, if not in silence, than in professional confidence; accountable not to society as a whole, but to the immediate managers who employ him. The jargon used by the systems analyst often prevents these managers from completely engaging in the design, and they must ultimately be "sold" the solution.

David Graf (2013) elaborated on the functions of a system analyst changing due to the setting of the immediate organization or circumstances confronting the organization in order to assist system analysts in adapting to work

circumstances and unexpected changes in their organizations. As a result, Information Technology Analysts must always adjust to changing job conditions in order to remain accountable in carrying out their responsibilities.

Cynthia L et al (2016) presented that in order to effectively leverage technical advancements, information technology (IS) workers need the right skill set. Certain aspects of a systems analyst's career evolution, according to social constructivist theory, are due to their perceptions of the importance of various job skills, as well as their preferences for using their technical job skills. According to the results of a self-report survey of 124 systems analysts, all of the capability dimensions examined are important to their position in some way. For both preferences to use and expectations of importance, interpersonal skills and system development skills rank significantly higher than political skills and knowledge, technology skills, and business role knowledge, suggesting that systems analysts see their place as a socio-technical feature and pursue this functional duality. The results show that preferences and desires differ between the sexes and age groups studied. The results will add to the body of research on information system human resources and will aid in job development and career planning.

Derek C. Smith (1989) suggested that the use of computer technology and information systems has risen significantly over the last decade while investigating the personality of the systems analyst. This new industry now employs a diverse community of people with a variety of academic and commercial backgrounds, and it continues to grapple with issues of professionalism, standards, and success. The majority of System Analysts have advanced through the technical ranks, beginning as entry-level programmers and progressing to systems analysts and information systems management.

With 100,000 analysts working in 1970, the systems analyst, a job designation that arose with the introduction of computers, has seen a rising job market (BLS, 1974). The total number of people working in this sector is expected to reach 160,000 by 1980. BLS (1974). There will be a demand for 185,000 systems analysts by 1985. (Martin, 1976). Since the beginning of the openness movement in education, non-professionals have desired a voice in educational systems (Morris, 1971). According to computer implementation directors in 1972, educational institutions were not adequately training students to meet industry needs (Hurst, 1972). As a result, after hiring data processing graduates, some companies retrain students to become successful and useful contributors to the electronic data processing business. Pollack discovered in 1973 that the primary source of professional personnel for computer firms was their own training programs. In the computer industry, personnel with comprehensive training in systems analysis are needed.

Aim and Objectives

The aim of this research is to define the roles of a system analyst in supporting the university administration through technological innovations.

-the objectives are:

1. To help line managers, directors administrators in the university see the importance of the System Analyst in their organization
2. To support the system analyst in providing business solution in their organization.
3. To recommend through a more advanced research the way system analyst perceive and drive work and business using advanced technologies.

Discussions and Findings

-the Systems Analyst

This study investigated the perspectives and opinions of ALAN DENNIS from Indiana University, BARBARA HALEY from WIXOM University of Virginia, and ROBERTA M. ROTH from the University of Northern Iowa on key roles of a system analyst and how systems analysts should manage situations that arise around them, their work, and their top-managers. This study also looked into the operations of some of Nigeria's public universities' information and communication centers.

According to Alan Dennis et al. (2011), systems analysts play an important role in information system development projects. The systems analyst collaborates closely with all project team members to ensure that the team develops the appropriate system in an efficient manner. Systems analysts must be able to use technology to solve business problems.

Furthermore, systems analysts may act as change agents, identifying organizational improvements that need to be made, designing systems to implement those changes, and training and motivating others to use the systems. Expertise in Systems Analysis Change is introduced to the organization and its people by new information systems. One of the most difficult jobs a person can have is leading a successful organizational change effort. Understanding what needs to be changed, knowing how to change it, and persuading others of the importance of change necessitate a diverse set of skills. These abilities can be classified into six major categories:

- Technical,
- Business,
- Analytical,
- Interpersonal,
- Management, and
- Ethical.

Analysts must be technically savvy in order to comprehend the organization's current technical climate, the new system's technological basis, and how these can be combined into an integrated technical solution. To understand how IT can be applied to business circumstances and to ensure that IT provides real business value, business skills are needed. Analysts are continuous problem solvers at both the project and organizational levels, and their analytical abilities are constantly put to the test. Analysts must often interact efficiently one-on-one with users, business managers (many of whom have no experience with technology), and programmers (who often have more technical expertise than the analyst does). They must be able to present to large and small groups as well as compose papers. They must not only have good interpersonal skills, but they must also handle the people with whom they work, as well as the pressures and threats associated with uncertain circumstances. Finally, analysts must interact with other project team members, managers, and system users in an equal, truthful, and ethical manner. Analysts often work with sensitive information or information that, if shared with others, may cause harm (e.g., employee dissent); it is important for analysts to maintain faith and trust with all citizens.

In figure 4.0, we presented the relationship between IT specialist, systems analyst and line managers.

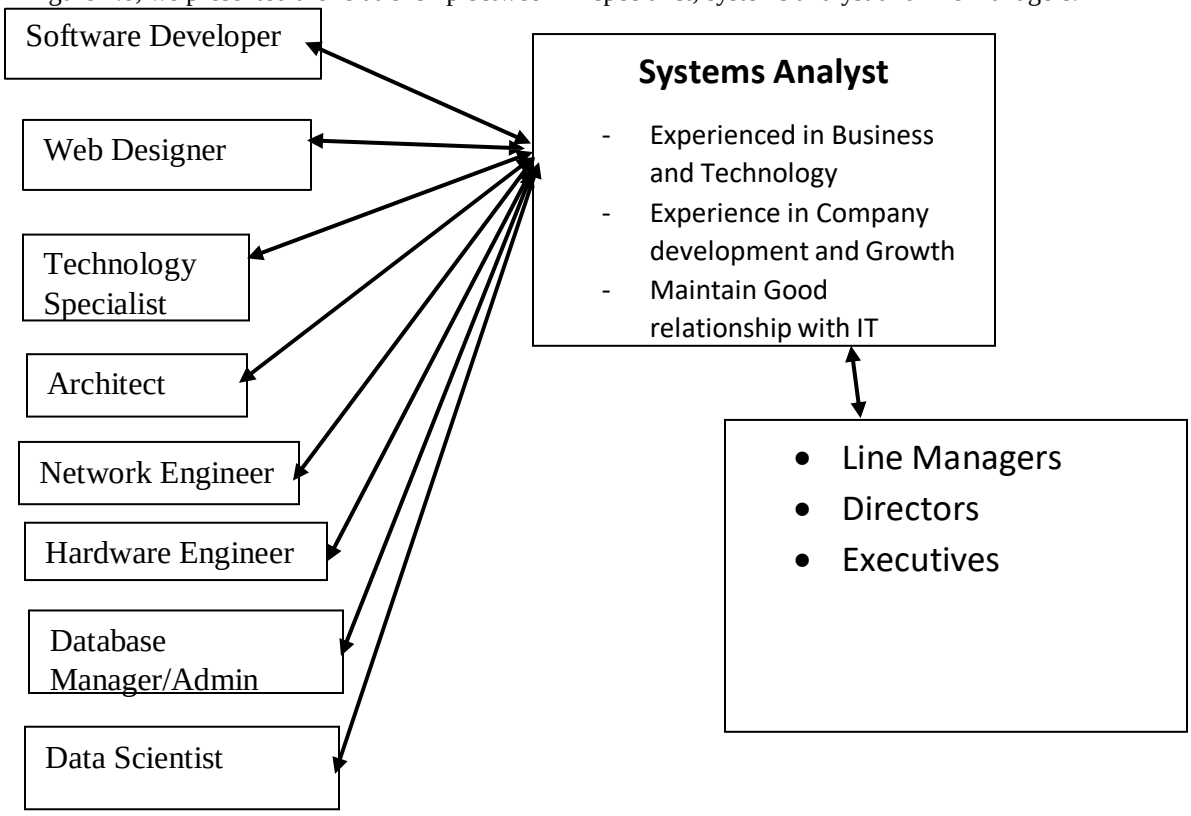

Figure 4.0: Relationship between IT specialist, systems analyst and line managers

According to Figure 4.0, the System Analyst acts as a liaison between the Executive, Directors, and Line Managers, all of whom are in charge of the university system's administration. The system analyst has progressed from being an information technology specialized specialist to understanding organizational processes and functions in order to adapt technologies to the system's development. Systems Analysts must have technical expertise to comprehend the current technical framework, the new system's technological foundation, and how these can be combined into a technical solution. To understand how information technology can be applied to business situations and to ensure that it provides real business value, business skills are needed. Analysts are continuous problem solvers at both the project and organizational levels, and their analytical abilities are constantly put to the test.

Roles of a Systems Analyst in Developing the University System

As universities and technology have become more complex, most large institutions are now forming project teams that include a variety of analysts who play separate yet complementary roles. In smaller organizations, one individual can fill multiple roles. These functions and how they relate to a systems development project are briefly described here. The task of a systems analyst is to concentrate on the issues that affect a system or an organization. This person generates ideas and suggestions for how information technology can enhance and strengthen business processes, assists in the creation of new business processes that are enabled by technology, creates the new information system, and ensures that all information system requirements are met. The systems analyst will have extensive training and experience in programming, as well as research and design.

Being a System Analyst

After graduating from university, many people want to work as a systems analyst. That is a fantastic goal. Before graduation, you should think about what kind of courses you should take. It's also important to consider what kind of summer job or internship to pursue.

Types of Systems Analyst

Business Analyst: Its job is to concentrate on the system's business issues. This person aids in the identification of the system's market importance, the development of ideas for enhancing business processes, and the creation of new business processes and policies. The business analyst will have knowledge of research and design, as well as business training and experience.

The requirements Analyst: Its primary responsibility is to gather specifications from the new system's stakeholders. This specialty has increasingly progressed as more companies understand the vital role that full and precise criteria play in the system's ultimate success. Requirements analysts are highly trained in a variety of requirements elicitation methods, have a strong understanding of the market, and are excellent communicators.

The Infrastructure Analyst: The position is responsible for technical issues relating to how the system can communicate with the organization's technical infrastructure (hardware, software, networks, and databases). This person ensures that the new information system meets organizational requirements and assists in the identification of technology improvements required to sustain the system. The infrastructure analyst would be well-versed in networking, database management, and a wide range of hardware and software items. Over time, an experienced infrastructure analyst can take on the role of software architect, guiding application design decisions in the context of the organization's entire IT environment.

4.4.4 The Change Management Analyst: The position focuses on the people and management problems that arise during the implementation of the system. This person ensures that users have access to proper documentation and support, as well as providing user training on the new system and developing strategies to address change resistance. The change management analyst would have extensive organizational behavior training and experience, as well as skills in change management. The project manager's job is to make sure the project is finished on schedule and on budget, and that the system provides the

desired value to the company. The project manager is frequently a professional systems analyst who has gained advanced project management expertise and skills through training and experience. In the next chapter, we'll talk more about the project manager. Roles and the terms used to describe them can differ from one organization to the next. Furthermore, there is no one-size-fits-all career path across these positions. Some programmers/analysts may begin their careers as more technically focused programmers/analysts. Others can come in as a business-oriented functional specialist with a passion for using technology to solve problems.

As shown in Figure 4.1, those who are interested in the broad field of information systems development may follow a variety of paths during their career.

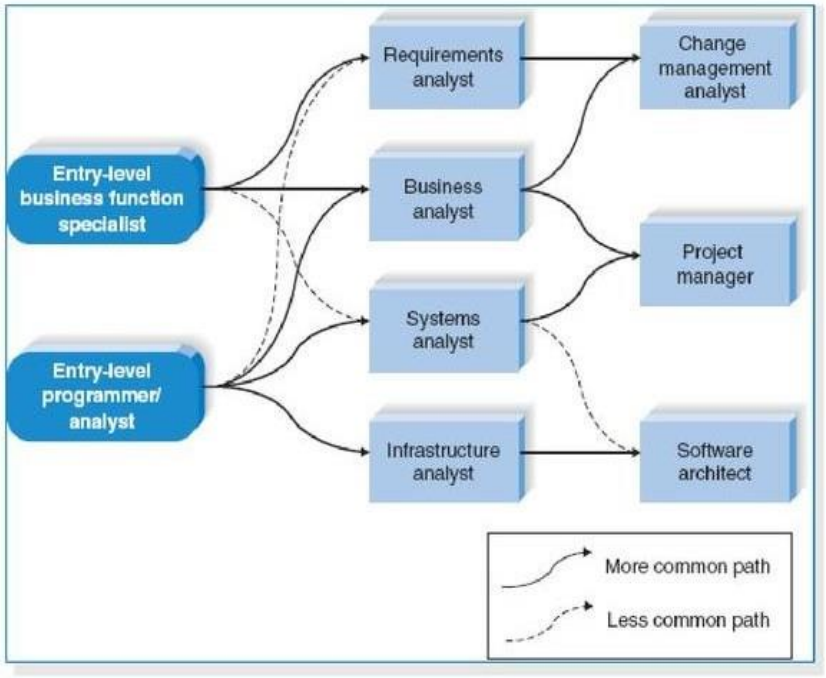

Figure 4.4: Career Paths for System Developers. Printed from Systems Analysis Design UML 5th edition. (ALAN et al 2011).

Inter-Personal Skills of a System Analyst

The interpersonal skills required by a system analyst are:

1. **Communication**: To understand and connect with the user community as well as the technical experts, the analyst must be an excellent communicator. Users may not be able to adequately express their needs to the analyst at times, but the analyst must be able to consider their needs based on their imperfect communication.
2. **Foresightedness and Vision**: The analyst must have foresight and vision in order to factor in potential user requirements even though they have not been considered in the design. In addition, the analyst must have foresight in terms of technical advancements. He or she must be able to forecast potential market requirements as well as technical strengths and constraints. They should also make it clear that the design is suitable not only for the short but also for the long term.
3. **Adaptability and Flexibility Skills**: While the analyst may be new to the business world, he or she must be quick to learn and adapt to the organization's culture and environment. Flexibility in problem understanding is also needed, as is flexibility in coming up with alternative solutions.
4. **Selling**: The analyst needs to have flair to sell their ideas and solutions to the users. Sometimes this may be difficult as the users and clients might not know what solution will serve them best. The analyst needs to employ his selling skills to convince the users on the suitability of a solution.

5. **Patience and Rationality**: So that he or she does not jump to a solution, the analyst must be patient and reasonable. They may miss crucial details about the problem/opportunity if they rush, and they may end up promoting the wrong answer for the users. Rationality is also a virtue for the system analyst because it allows them to analyze the problem/opportunity objectively and without bias.
6. **Sound Temperament**: In the face of adversity, the analyst must maintain his or her composure. Most of the time, the vital data that the analyst requires is difficult to obtain and will arrive late. In such cases, the analyst would have to put up with everything and remain calm. As a result, his demeanor would aid him in coming up with a suitable solution for the client.

Management Skills of a Systems Analyst

These abilities are a must-have for any analyst. The system analyst must deliver despite a number of constraints, so they must have strong time management and resource management skills. They'll need to have the following management skills:

1. Ability to Control Time. This will assist them in sticking to the task's strict deadlines.
2. Ability to Plan Projects. This will aid them in keeping the project on track and under budget.
3. Man-management Abilities Human resource skills would be required of the analyst in order for him to handle the people who work for him. This capacity would also aid them in connecting with people inside the client company, increasing the acceptability of their solutions.
4. Team Leadership Abilities. The analyst must work well with others. They must work as part of a team to ensure that the team runs smoothly.
5. Ability to Organize and Steer. These are basic management skills that the analyst must possess in order to properly perform the analysis.
6. The ability to Negotiate. To sell his solution and obtain the necessary data from the customer, the analyst should be a good negotiator.
7. Leadership Quality: The analyst must demonstrate leadership and take constructive steps to consider problems relating to the company and its line of business so that they are fully aware of the problem/related opportunity's issues.
8. Training and Documentation Skills: The analyst must be a successful trainer because they will be called upon to help users improve their abilities. Their documentation skills would also be needed, as contact with the technical team will be incomplete without them.
9. Presentation Skills: The analyst must be able to present well in order to interact effectively.
10. The device analyst must possess the following professional abilities:
11. Creativity: With this ability, the analyst would be able to provide users with innovative technological solutions to the same problem.
12. Problem solving: This ability can assist the analyst in developing a systems approach to problem solving, allowing them to arrange a problem even though none exists.
13. Technical knowledge: The analyst must have a solid understanding of the technical domain in order to come up with alternative solutions to the problem. They won't be able to develop the solution unless they have the technological know-how. In addition, the analyst must have a wide understanding of the entire technical domain. They will be able to be more versatile in their solution strategy as a result of their wide experience, and they will have a greater understanding of the future of technology.

Conclusion

System Analysts, according to this paper, are seasoned IT professionals who use their knowledge of technology and business to develop their organizations. They assist their clients with business solutions. They are also in charge of understanding, evaluating, and improving the organization's technology requirements in such a way that the IT specialist can incorporate them. We've also learned various skills needed by IT specialists, including time management, project management, resource management (resourcefulness), team management, and organizing and directing skills. The nature of systems analysts' activities and work environment has changed dramatically in recent years, especially as the university

environment has evolved. A thorough examination of this research would promote the hiring and training of system analysts in universities, as well as positions that are specifically established for the university system's growth and development.

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