

An overview of the applications of project scope management in Somaliland telecommunication industry: Approaches, impacts, constraints and practices¹

**Sakariye Mahamed Abdilahi¹, Adebayo Adeboye Fashina^{1,2,3,*} and Funke
Folasade Fakunle⁴**

¹Project Management Program, School of Graduate Studies and Research, Gollis University, 26 June
District, Hargeisa, Somaliland.

²Engineering Management Program, School of Graduate Studies and Research, Gollis University, 26
June District, Hargeisa, Somaliland.

³Electrical Engineering Department, Gollis University, 26 June District, Hargeisa, Somaliland.

⁴Compliance and Auditing Department, AdeFolasade Management Systems Consults, Lagos-Nigeria.

***Corresponding author:** Adebayo Adeboye Fashina. adebayofashina@gmail.com

Abstract

In recent times, the complexity of telecommunication projects, the challenges linked to the management of such projects' budget restrictions and the ever-changing world of technology has facilitated the use of project management tools in the telecommunication industries around the world. However, the most vital component among these tools is the project scope management knowledge area. This is because it guides the understanding of the sustainability and progressive development trend of any type of project in the telecommunication industry. It is thus clear that there is a need to explore the outcomes of the use of project scope management in telecommunication projects in different countries. Consequently, this paper attempts to review the overall picture of the applications of project scope management in the telecommunication industry with the aim of exploring the approaches, impacts, constraints and practices of project scope management in telecommunication projects in Somaliland. The current paper is quite important to impending project managers that might want to practice in the telecommunication industry in Somaliland and elsewhere, as it provides new insights and novel strategies that are essential for the timely delivery of telecommunication projects. Moreover, this paper offers young academic researchers in project management field a better underlying understanding of the applications of project management knowledge areas, particularly, the use of project scope management in the telecommunication industry.

Keywords: Project Management, Project Scope Management, Application of Scope Management, Telecommunication Projects, Low-income Countries, Somaliland

¹ How to cite this paper: Abdilahi, S. M., Fashina, A. A., Fakunle, F. F. (2020). An overview of the applications of project scope management in Somaliland telecommunication industry: Approaches, impacts, constraints and practices; *PM World Journal*, Vol. IX, Issue VI, June.

1. Introduction

According to the Project Management Institute, a project can be defined as a temporary activity undertaken to create a unique product, service or result (Project Management I., 2014). In fact, the temporary nature of projects shows that they need to have a precise beginning and a proposed end date for completion (Botter, 1982; Fakunle & Fashina, 2020). The end date of such a project is said to be reached once the project's objectives are achieved or in a case where the project is terminated as a result of the objectives not been accomplished or when the actual need for such project is no longer in existence (Botter, 1982; Parker, 1993). From another perception, a project is seen to possess some characteristics, that include uniqueness, timescale, budget, limited resources, risks due to uncertainty, and beneficial change of the organizations involved (Atkinson, Crawford, & Ward, 2006; Fashina, Fakunle, & Opiri, 2020).

Basically, a project consists of a group of interconnected work activities that are limited by the scope of the project, accessible budget assigned for such project and the project timeline within which the project is anticipated to be delivered (Atkinson et al., 2006). These projects could vary in size, cost, timeline etc. For instance, some projects take a few days to be completed while others could take years to be completed. Also, a project may have a client/owner, a sponsor or a donor that pays for the project (Fashina et al., 2020; Haughey, 2012). Since all projects are unique, it is quite tough to define the objectives a project, accurately estimate its cost, or ascertain its timeline (Atkinson, 1999). This is why different industries adopt project management and its knowledge areas to apply knowledge, skills, instruments and techniques required to carry out project activities in order to meet the set requirements of any project (Abdilahi, Fakunle, & Fashina, 2020; Fakunle & Fashina, 2020). This is usually achieved via the application of analytically grouped procedures and processes, identification of requirements, needs, concerns, or customer potentials, and through harmonizing opposing project constraints, limitations and project boundaries to reach the project objectives (de Wit, 1988; Mir & Pinnington, 2014).

Simply put, project management supplies tools to restrict the scope of the project and any changes to the project (Khan, 2006; Nath & Momin, 2014). It defines and maintains communication links across organizational and occupational boundaries. It also anticipates risks, and uncertainties, and measures progress and quality of work delivered within expected duration and project constraint (Phillips, Brantley, & Phillips, 2011; Sheikh, Fakunle, & Fashina, 2020). In addition, project management deals with the execution of tracking progress that include the development of workable schedule, financial report model for the project, tracking of efforts against plan, cost management against budget, progress reporting, etc. (Nath & Momin, 2014). It further involves clearly defined scopes, input and output with activities ordered in priority of time and space (Fashina, Abdilahi, Fakunle, & Ahmed, 2020; Khan, 2006). These are the reasons why project management is very important for a more efficient and effective implementation of telecommunication projects, and service delivery process that reduces the risks of cost overruns, schedule decrements, quality enhancement and increases the likelihoods of project success (Munns & Bjeirmi, 1996; Too & Weaver, 2014).

However, among the ten project management knowledge areas, project scope management is believed to be the most significant, particularly, in the telecommunication industry where it plays

a central role in the implementation of projects (Dekkers & Forselius, 2007). This is because it consists of indispensable practices that allow the effective execution of only work activities that are required to attain the targeted product, service or outcome (Nath & Momin, 2014). In addition, unlike the other industries the uniqueness of telecommunication projects comes from the fact that they do not have the history of unit cost models (Dekkers & Forselius, 2007; Omar, Fashina, & Fakunle, 2020). As such, telecommunication industries across the globe are now increasing their project success rates by exploring scope management procedures and processes to manage such projects (Abdilahi et al., 2020). This has facilitated the much-required transformation in many telecommunication companies in recent years as the planning and distribution of project resources are executed based on the project scope (Dekkers & Forselius, 2007; Fashina, Abdilahi, & Fakunle, 2020). Moreover, accomplishing the accurate outcomes is the main test of the real performance in project management; and this is noticed through implementing the scope. It is therefore clear, that there is a need to continually apply project scope management to support and manage telecommunication projects from the initial to the final phase, particularly, in low-income countries like Somaliland. Moreover, paying attention to this would ensure that companies in the telecommunication industry improve their return on investment while sustaining market share.

Within this context, this paper presents an overview of the applications of project scope management in the telecommunication industry with a focus on telecommunication projects in Somaliland. The approaches, impacts, constraints and practices of project scope management in the industry are also explored with the aim of providing an improved understanding on the status quo of Somaliland telecommunication sector. This paper thus bridges the knowledge gaps between concept and practice regarding the Somaliland telecommunication industry. Moreover, this paper offers evidence-based insights that could guide policy-makers and decision-makers across the global telecommunication industry in the formulation of innovative strategies essential for the application of project scope management and other project management knowledge areas in impending telecommunication projects.

The first section of this paper presents the background introduction to project management and project scope management. The second section explored the roles, significance and constraints of project scope management in projects. Besides, the major projects that are carried out in the Somaliland telecommunication industry projects are explored in the third section before elucidating on the links between project scope management and the implementation in telecommunication projects in Somaliland in the fourth section. The last part of this paper presents the concluding remarks.

2. Theory

2.1 Roles, significance and constraints of project scope management

2.1.1 The Roles of Scope Management in a Project

It is vital to a project's success that major stakeholders are identified during the development of the project scope and are involved in the project scope definition (Bingham & Gibson, 2017; Dumont, Gibson, & Fish, 1997). The scope statement offers justification for the project existence, lists the advanced deliverables, and measures the project objectives (Bingham & Gibson, 2017).

Managing project scope is largely concerned with defining and controlling what is and is not included in the project. According to Dekkers and Forselius (2007), scope management plays a fundamental role in an information technology project like in the telecommunication industry. The authors further established that scope management has strong relations to several of the knowledge areas, of which they identify time, cost, quality, and risk management (Atkinson, 1999; Dekkers & Forselius, 2007). They believe that scope management is more important than any other of the individual areas and processes in projects. In an effort to support this argument, the authors presented information that explained why 60-99 percent of all defects latent in production software could be attributed back to the requirements phase (Atkinson, 1999; Dekkers & Forselius, 2007). To buttress on the point by (Atkinson, 1999; Dekkers & Forselius, 2007), Taylor (2000) identified in his work that the major reasons why a project fail can be attributed to requirement definition, change management and scope management.

2.1.2 Significance of project scope management

Scope management ensures that a project's scope is accurately defined and mapped, and enables project managers to allocate the proper labor and costs necessary to complete the project. Project scope management is about planning and controlling (Dumont et al., 1997). Managing the expectations of clients and stakeholders can be one of the most difficult tasks a project manager can be faced with. Basically, a distinct scope helps all parties involved in a project to stay on the same page throughout the lifecycle of the project (Fashina et al., 2020). Thus, effective scope management can ensure that some of these issues are avoided by clearly defining and communicating the scope to all parties involved in the project. Project scope can help differentiate between what is and what is not involved in a project and controls what is allowed or removed as it is implemented (Bingham & Gibson, 2017; Cho & Gibson, 2001; Dumont et al., 1997). Scope management also creates control factors, that can be utilized when addressing elements that are the consequences of changes during the lifecycle of the project. Project scope is therefore critical, and without it, project managers would have no clue of what time, cost or labor involved in a project. Moreover, scope management serves as the basis for every decision a project manager will make on a job and when it is required to be changed (Bingham & Gibson, 2017; Cho & Gibson, 2001; Dumont et al., 1997).

2.1.3 Constraints of project scope management

Project constraints are anything that can either limit the actions of project team or commands their actions (Atkinson et al., 2006). The project triple constraints are mainly scope, time and cost while the enhanced constraints include time, cost, risk, scope, quality, resources, and customer satisfaction (Khan, 2006). The triple constraints work collectively with each other, meaning that a change in one directly affects the other two. Time constraint is typically offered in the form of obligatory deadline within which the project is expected to be finished (Atkinson et al., 2006; Khan, 2006). This is enforced by the senior management.

Furthermore, budget or cost constraint restricts the project's capability to use funds on the project. It thus has the potential of limiting the project scope. It is the scope elements that define the deliverables and the boundaries within which the project will be executed (Atkinson et al., 2006). For quality constraints, restrictions are determined by the specifications of the products or services

and also the anticipated standards that are essential. Resource constraint deals with availability of internal and external resources for project implementation in terms of needed skills, quantity, experience and so on (Atkinson et al., 2006; Khan, 2006).

3. Major telecommunications projects in Somaliland

The three telecommunication giants that operate in Somaliland are Telesom, Somtel and Somcable. They all offer services such as internet, voice, mobile money banking and mobile money transfer. Somcable is the leading Internet Service Provider (ISPs) in Somaliland in term of the fastest internet service and this is traceable to the fact that it is the only company using fiber optic technology in Somaliland. In spite of this great feat, Telesom and Somtel is still the preferred network when it comes to internet services since they have more coverage in the country and they seem to be more reliable. Telesom is regarded as the backbone of Somaliland voice communication due to the network coverage across every region in Somaliland (Kilcullen, 2019). In addition to this, Telesom dominates the mobile money banking market in Somaliland with her ZAAD project that is seen as the most efficient and effective way to send and receive money within Somaliland. Somtel on the other hand has the biggest mobile money transfer market when it comes to sending and receiving money from outside the country (Kilcullen, 2019; Mas & Radcliffe, 2011; Munford, 2012). They offer services in more than forty countries via Dahabshil banking system, exchange system, and the electronic money system called the E-dahab. Both the ZAAD and E-dahab system are designed to aid mobile money transfer internally and externally, and allows operations in both US Dollars and Somaliland Shillings (Kilcullen, 2019; Mas & Radcliffe, 2011; Munford, 2012).

The availability of all these services are as a result of the various projects that are carried out in the telecommunication industry in Somaliland. These include the design, installation and configuration of a communication networks to support certain services and customers; the development of telecommunication network technology and architecture: circuit switch and packet switch; the constructing of data center and base station facility; development of a new feature, product or service according to clients' needs; planning, installation and expansion of fiber optic technology; the development of high-speed internet technology: 3G and 4G and; some other notable projects.

3.1 Design, installation and configuration of communication network to support certain services

The most common projects in the telecommunication industry in Somaliland is the designing, installation, and configuration of communication networks to suit customer's need. Enterprise internetwork topology are produced, according to enterprise procedures, after considering some factors that include technical necessities, physical and financial limitations and expansion forecasts etc. The installation of network hardware to network topology design is carried out according to the telecommunication enterprise procedures. To achieve this, the network addressing scheme for network connectivity is determined and verified using the required calculations. Following this, the routers and switches are configured to perform logical connection of the internetwork before conducting the connectivity and performance tests in order to verify

that the network installation meets design specifications. If the process fails, a troubleshooting of the internetwork and internet connectivity is required, according to manufacturer's specifications and enterprise procedures. The enterprise procedure is quite significant to Somaliland telecommunication companies because they annually introduce new products, internet bandwidth and Wi-Fi bundles services (Munford, 2012; Ojiako, Greenwood, & Johansen, 2005). All these procedures are however guided by the scope of the project.

3.2 Development of telecommunication network technology and architecture: circuit switch and packet switch

The development of telecommunication network technology and architecture is the second kind of project carried out in Somaliland telecommunication industry. This project type requires the services of professional since precision is of utmost priority and as such the project scope needs to be well defined and managed appropriately (Gutierrez & Berg, 2000). Circuit switch was the first switching techniques used in communication network in Somaliland. Telesom was the first company that released the switch circuit and there are some regions in Somaliland where this technology is still being used. Circuit switching was particularly designed for voice communication but it is less suitable for data transmission. So, there was a need for an improved solution for data transmission and this brought about the evolution of packet switching (Ojiako et al., 2005). Telesom, Somtel and Somcable all use packet switching to handle their telecommunications network, electronic system of links and switches etc.

3.3 Construction and maintenance of data center and base station facility

The construction of data center and base station facilities is one of the projects that is carried out in the Somaliland telecommunication industry with the tasks to follow the required international construction/building codes and regulations (Fakunle, Opiti, Sheikh, & Fashina, 2020). Unlike other projects that is not often carried out, its maintenance is on a regular basis. This is because data centers/base stations for instance contain a large number of clustered servers and related equipment that run for 24 hours. Furthermore, since data centers rarely met the operational and capacity requirements of their initial designs, the application of scope management is often required. In addition, to meet up with the principal goals of a data center design flexibility and scalability, telecommunication companies apply project scope management in identifying the required site location, building selection, floor and ceiling layout, data network system design/layout, electrical system design, mechanical design and modularity.

3.4 Development of a new feature, product or service according to clients' need

The development of new features, products or services is one of the projects that is carried out in the telecommunication industry in Somaliland. This is done according to clients' need and could be on a daily, weekly, monthly, quarterly or yearly basis. For instance, Telesom charges its customers for internet bundle according to the need of the customer. As at March 2020, some of these charges include \$0.5 per week for 1 GB, \$1 per week for 2 GB, for family bundles it's 4.4 GB monthly for \$25, student bundle is \$15 monthly for 2.7 GB and there is also VIP bundle with 100 GB data at \$ 20 per month. As for Somcable Company, the internet bundle ranges from \$15

per month for unlimited internet usage. Somtel offers the fastest 4G+ network, with speeds up to 10 GB (for download & Upload).

3.5 Planning, implementation and expansion of fiber optic technology

The fiber optic technology project started in the capital, Hargeisa, and expansions are ongoing in other regions of the country (Kilcullen, 2019; Munford, 2012). The first and only telecommunication company that utilizes fiber optic technology in Somaliland is Somcable Company. Somcable connects businesses and homes in Somaliland with up to 8 Gbps capacity through fiber through the air (FTTA) access and fiber to the home (FTTH) (Kilcullen, 2019; Munford, 2012). The other telecommunication companies are currently not allowed to use the fiber optic technology due to the fact that the Somaliland parliament voted Somcable Company as the sole telecommunication firm that is allowed to provide internet services using fiber optic technology after obtaining the rights to bring in the technology to Somaliland. As at December, 2019, the terrestrial fiber optic cable infrastructure/technology has covered a total distance of 1200 km in mostly Hargeisa and Berbera. However, efforts are being made to extend this technology to all Somaliland regions (Kilcullen, 2019; Munford, 2012).

3.6 Development of high-speed internet technology: 2G, 3G AND 4G

Another major telecommunication project that is common in Somaliland is the development of high-speed internet technology. Telesom Company was the first company to introduce second-generation (2G) mobile network service and by July 2011, Somaliland saw a transit from the regular/analogy 2G technology to the third-generation (3G) technology that significantly improved the wireless communication quality and provide faster internet access to subscribers using web-enabled phones and laptops (Kilcullen, 2019). Somaliland moved a step further in this regard when Somtel introduce the fourth-generation 4G lite technology with improved voice and data communication. Since 2015, all operators now have allocations in the 800MHz, 1800MHz and 2600MHz bands; this provides a strong foundation to proffer nationwide 4G (Kilcullen, 2019; Munford, 2012). In the coming years, the three telecommunication giants in Somaliland are working towards introducing the fifth-generation (5G) mobile network service. A lot of promotions and publicities are ongoing in this regard.

3.7 Other telecommunication projects

The other notable telecommunication projects that are carried out in Somaliland include design, installation and configuration of robust network security system, the design, installation and configuration of Domain Name Server (DNS), and the design, installation and configuration of Radius Server (RS).

4. Project scope management and its implementation in telecommunication projects in Somaliland

Scope management proffers the foundation upon which all project work in the telecommunication industry is built and it is, thus, the ultimate of predevelopment planning (Pinto & Slevin, 1988). This is the reason why implementing project scope management in the telecommunication

industry in Somaliland has experienced an increasing attention. Using project scope management in the telecommunication industry is therefore significant as it helps to practically manage telecommunication projects in a way that allows the expected outcomes or objective of such project to be easily achieved (Pinto & Slevin, 1988; Singh, 2017). However, some companies in the industry are faced with a number of problems in the course of implementing these projects and sometimes with the challenge of safeguarding the measures and practices that ease success (Singh, 2017). Within this context, project management teams are now making efforts to find and apply the appropriate project management measures, practices, standards, structures and procedures that can facilitate success in the telecommunication projects (Nath & Momin, 2014; Nicholas, 2017). Nonetheless, since generating a satisfactory project scope and diminishing scope changes during the project can be quite challenging, it is vital that at the completion of any telecommunication project should measure the scope against the planned necessities.

4.1 Scope management practices employed in projects among telecommunication companies

In the early stage of development in telecommunication industry, scope management practices are been ignored due a number of reasons that include the pressure to meet up with project deadline, the need to maximize profit and pay off loans or credit facilities etc. (Fashina et al., 2020; Ogunberu et al., 2018). Not until recently that the industry saw the need to incorporate scope management into most of its project. The project scope management practices in telecommunication involves planning, creation of work breakdown structure and verification and control of project scope (Abdilahi, Fakunle, & Fashina, 2020; Ogunberu et al., 2018). As a result of this, the industry is able to apply project scope management when, installing, designing and configuration new networks in order to increase customer satisfaction. Other projects where telecommunication companies in Somaliland implement scope management include the development of 3G and 4G technology, and the development and expansion of fiber optic network (Abdilahi et al., 2020).

4.2 Factors influencing the choice of project scope management practices among telecommunication companies in Somaliland.

The significant factor that influences the choice of project scope management practices employed in the telecommunication organizations are scope initiation, scope planning, scope definition and scope verification (Abdilahi et al., 2020). The scope planning and verification are mostly perceived as the most influential among the four factors (Abdilahi et al., 2020). There is also consensus among many researchers that it is essential to make a scope plan that explains how the scope of the project will be defined and managed throughout the project lifecycle (Abdilahi et al., 2020; Phillips et al., 2011). This task is normally achieved by a collaborative effort of the project manager, the project owner, nominated team members, designated stakeholders and those responsible for any scope management practices in the telecommunication (Fashina et al., 2020).

4.3 The Importance of project scope management in telecommunication projects in Somaliland

The proper use of project scope management is rapidly becoming a requirement among telecommunication companies in Somaliland, following the enormous contribution of the industry to the economic development of the nation (Abdilahi et al., 2020). In several cases in telecommunication projects, scope management is seen as an important success factor when it is well-defined and efficiently managed or a reason for failure when it is not well defined (Abdilahi et al., 2020; Fashina et al., 2020). Since size is therefore, one dimension of project scope that affect the success of a project, project scope management is one way that can help balance the project scope in telecommunication projects (Abdilahi et al., 2020). This is because if the project scope becomes too large, the telecommunication company will be overwhelmed which will in turn lead to project failure. On the other hands, should the scope be too narrow, the subsequent system will not fit the anticipated outcome (Fashina et al., 2020).

4.4 Managing project scope successfully in telecommunication projects in Somaliland

Managing the scope of a project is vital to the success of any project in the telecommunication industry (Abdilahi et al., 2020). When not properly controlled during the course of such project, a number of issues are likely to arise such as the project not meeting up with the timeline or exceeding the budget (Fashina et al., 2020). Furthermore, successfully managing the scope of a telecommunication project helps create and uphold the scope statement. To achieve this, a smooth and feasible work breakdown structure (WBS) needs to be created (Abdilahi et al., 2020). The WBS splits project deliverables into progressively smaller and more realistic mechanism that are called work packages at the operational/lower level (Kent Crawford, 2006). This bears the modification of the schedule, cost, monitoring and controlling of the whole venture.

4.4.1 Improving project success with better scope management in telecommunication projects in Somaliland

Typically, incomplete or poor scope leads to schedule blunders and sometimes cost overrun. However, a better or improved scope management practices can help avoid this, since scope is required to be complete and accurate, and the scope document is required to be shared with all stakeholders (Abdilahi et al., 2020). This is because a scope that is not well incorporated in the telecommunication project lifecycle can leads to misunderstanding of the project design and necessities (Abdilahi et al., 2020). A steady WBS however, can be helpful in this regard if more attention is given to the deliverables rather than the accompanying tasks in telecommunication projects. The WBS is not to be utilized as a checklist of all the things that is needed to finish such projects but can focus on its original intent, which is basically to help establish and describe the overall project scope (Abdilahi et al., 2020).

4.4.2 Problems with project scope management in telecommunication projects in Somaliland

Generally, the problem with project scope in telecommunication projects may arise from a number of factors (Fashina et al., 2020; Ogunberu et al., 2016). First, ambiguity in scope mostly leads to misunderstanding and redundant work in telecommunication projects. This is sometimes

experienced during the installation or expansion of fiber optic technology. Another problem associated with scope management in Somaliland telecommunication projects is the incompleteness and inaccuracy of project scope (Fashina et al., 2020). This often causes unnecessary schedule mistakes and cost overrun in telecommunication projects. The third challenge that can be related to scope management is having a transient project scope. This is the root cause of lateness in project deliveries and sometime an unending project (Young, 2007). Lastly, when a project scope is not collaborated, it is seen as a great issue in telecommunication projects because it often leads to misinterpretation of the project requirements and design (Fashina et al., 2020; Ogunberu et al., 2016). The next subsection however discusses the potential ways these challenges can be subdued.

4.4.3 Overcoming project scope issues in telecommunication projects in Somaliland

The protection against all the project scope issues in telecommunication projects in Somaliland is to clearly and precisely define the project's scope at the initial stage of the project (Abdilahi et al., 2020). Once this is achieved, the scope will have to be validated, with all key stakeholders agreeing on the scope before forging ahead with it. Ideally, overcoming project issues particularly in the telecommunication projects requires the use of some useful tools and techniques that can be utilize to capture the project scope (Fashina et al., 2020; Ogunberu et al., 2016). These includes the defining of the project need, identifying key stakeholders and project driver, developing operational concepts and identifying external interfaces (Fashina et al., 2020; Ogunberu et al., 2016).

4.5 Project success in the telecommunication sector in Somaliland

In recent years, there have been an increasing implementation and development of information and communication technology projects in Somaliland particularly, in the telecommunication sector (Abdilahi et al., 2020). Yet, quite a number of these projects have recorded high failure rates, perhaps, as a result of poor project scope, design and management (Fashina et al., 2020). This is why the telecommunication industry and their project managers/teams are exploring ways, processes and methods involved in managing projects in order to improve upon their success rates (Fashina et al., 2020; Ogunberu et al., 2016).

Generally, project success or failure in the telecommunication industry can be traceable to a number of factors that include constituent alignment, proactive risk management, performance measurement, project scope definition and management, critical project communication and methodology usage (Abdilahi et al., 2020). Among these factors, scope definition and management are possibly the most significant because if the scope definition is unclear and there is no rigorous scope management, then a classic situation of project failure is ahead, waiting to be experienced (Fashina et al., 2020; Ogunberu et al., 2016). Nevertheless, achieving project success among telecommunication companies implies attaining the required long-term goals and objective (Abdilahi et al., 2020). This is why it must be clear and generally understood by all the project stakeholders, team members, and executives. On the other hand, few of the identified factors that have limited the project success rate among telecommunication companies include the inability to properly link business value to technical functionality at the requirement gathering stage,

unresolved technical uncertainties, and inadequate customer needs assessment (Fashina et al., 2020; Ogunberu et al., 2016).

5. Conclusions

In an effort to provide an improved understanding on the applications of project scope management in global telecommunication industry, the use, impacts, limitations and current practices of project scope management in telecommunication projects have been explored in this paper. The three telecommunication giants operational in Somaliland proffer services such as internet, voice, mobile money banking and mobile money transfer. However, the accessibility and efficiency of these services are linked with the success of various projects that are carried out in the Somaliland telecommunication industry.

These projects include: the design, installation and configuration of a communication networks to support certain services and customers; the development of telecommunication network technology and architecture: circuit switch and packet switch; the constructing of data center and base station facility; development of a new feature, product or service according to clients' needs; planning, installation and expansion of fiber optic technology; the development of high-speed internet technology: 2G, 3G and 4G; the design, installation and configuration of robust network security system; the design, installation and configuration of Domain Name Server (DNS) and; the design, installation and configuration of Radius Server (RS).

However, at the early phase of the development of the Somaliland telecommunication industry, the implementation of these projects was quite challenging because scope management practices were missing. Some of the reasons behind this can be linked to the pressure to meet up with the timeline of various projects, the need to pay off loans or credit facilities and maximize profit. (Fashina et al., 2020). Not until recently that the industry saw the need to incorporate scope management into every of its projects. As such, the project managers in these telecommunication companies are now putting in more efforts to explore ways to effectively apply proper scope management strategies, practices, procedures, and standards necessary for the successful delivery of telecommunication projects. Nevertheless, producing a satisfactory project scope or successfully managing the scope of a telecommunication project can be quite challenging, as such it crucial that project managers should evaluate the performance of each telecommunication projects by measuring the scope against the planned necessities.

One can hence argue that project scope management practices have significantly influence the success of telecommunication projects in Somaliland to some extent, as shown in this paper. We therefore recommend that scope management practices should be mandated during the implementation of telecommunication projects in the future as well as a critical training of telecommunication personnel on vital project management skills. Moreover, the current paper offers new insights that can guide fresh project managers on how to develop measures that could facilitate the timely delivery of telecommunication projects in Somaliland and elsewhere.

6. Acknowledgments: The authors are grateful to thank Engr. Saheed Adebayo of Globacom Limited (technical department) for useful technical and scientific discussion.

7. Declaration of Conflicting Interest: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

8. Funding: The author(s) received no financial support for the research, authorship, and/or publication of this article.

9. References

- Abdilahi, S. M., Fakunle, F. F., & Fashina, A. A. (2020). Exploring the extent to which project scope management processes influence the implementation of telecommunication projects. *PM World Journal*, IX(V), 1–18.
- Atkinson, R. (1999). Project management: Cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria. *International Journal of Project Management*. [https://doi.org/10.1016/S0263-7863\(98\)00069-6](https://doi.org/10.1016/S0263-7863(98)00069-6)
- Atkinson, R., Crawford, L., & Ward, S. (2006). Fundamental uncertainties in projects and the scope of project management. *International Journal of Project Management*. <https://doi.org/10.1016/j.ijproman.2006.09.011>
- Bingham, E., & Gibson, G. E. (2017). Infrastructure Project Scope Definition Using Project Definition Rating Index. *Journal of Management in Engineering*. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000483](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000483)
- Botter, C. H. (1982). Project management: A systems approach to planning, scheduling and controlling. *European Journal of Operational Research*. [https://doi.org/10.1016/0377-2217\(82\)90164-3](https://doi.org/10.1016/0377-2217(82)90164-3)
- Cho, C. S., & Gibson, G. E. (2001). Building project scope definition using project definition rating index. *Journal of Architectural Engineering*. [https://doi.org/10.1061/\(ASCE\)1076-0431\(2001\)7:4\(115\)](https://doi.org/10.1061/(ASCE)1076-0431(2001)7:4(115))
- de Wit, A. (1988). Measurement of project success. *International Journal of Project Management*. [https://doi.org/10.1016/0263-7863\(88\)90043-9](https://doi.org/10.1016/0263-7863(88)90043-9)
- Dekkers, C., & Forselius, P. (2007). Increase ICT project success with concrete scope management. *EUROMICRO 2007 - Proceedings of the 33rd EUROMICRO Conference on Software Engineering and Advanced Applications, SEAA 2007*. <https://doi.org/10.1109/EUROMICRO.2007.35>
- Dumont, P. R., Gibson, G. E., & Fish, J. R. (1997). Scope management using project definition rating index. *Journal of Management in Engineering*. [https://doi.org/10.1061/\(ASCE\)0742-597X\(1997\)13:5\(54\)](https://doi.org/10.1061/(ASCE)0742-597X(1997)13:5(54))
- Fakunle, F. F., Opiti, C., Sheikh, A. A., & Fashina, A. A. (2020). Major barriers to the enforcement and violation of building codes and regulations: a global perspective. *SPC Journal of Environmental Sciences*, 2(1), 12–18.
- Fakunle, F. F., & Fashina, A. A. (2020). Major delays in construction projects: A global overview. *PM World Journal*, IX(V), 1–15.
- Fashina, A. A., Abdilahi, S. M., & Fakunle, F. F. (2020). Examining the challenges associated with the implementation of project scope management in telecommunication projects in Somaliland. *PM World Journal*, IX(III), 1–16.
-

- Fashina, A. A., Fakunle, F. F., & Opiti, C. (2020). Exploring the common delay factors related to major parties involved in construction projects: A systematic review. *PM World Journal*, IX(V), 1–17.
- Fashina, A. A., Abdilahi, S. M., Fakunle, F. F., & Ahmed, M. H. (2020). Examining the extent to which SMEs can realize a better organizational performance when various project management practices are linked together. *Preprint*, 1–13. <https://doi.org/10.13140/RG.2.2.32388.76162>
- Gutierrez, L. H., & Berg, S. (2000). Telecommunications liberalization and regulatory governance: Lessons from Latin America. *Telecommunications Policy*. [https://doi.org/10.1016/S0308-5961\(00\)00069-0](https://doi.org/10.1016/S0308-5961(00)00069-0)
- Haughey, D. (2012). Project Planning a Step by Step Guide. *Project Smart*.
- Kent Crawford, J. (2006). The project management maturity model. *Information Systems Management*. <https://doi.org/10.1201/1078.10580530/46352.23.4.20060901/95113.7>
- Khan, A. (2006). Project scope management. *Cost Engineering (Morgantown, West Virginia)*. <https://doi.org/10.1201/b12717-6>
- Kilcullen, D. (2019). Hargeisa, Somaliland–Invisible City. Retrieved August 20, 2019, from Future of African Cities - The Brenthurst Foundation website: <http://thebrenthurstfoundation.org/workspace/files/discussion-paper-04-2019-hargeisa-somaliland-invisible-city.pdf>
- Mas, I., & Radcliffe, D. (2011). Scaling mobile money. *Journal of Payments Strategy & Systems*.
- Mir, F. A., & Pinnington, A. H. (2014). Exploring the value of project management: Linking Project Management Performance and Project Success. *International Journal of Project Management*. <https://doi.org/10.1016/j.ijproman.2013.05.012>
- Munford, M. (2012). Somaliland’s mobile payments boom. Retrieved October 22, 2019, from The Kernal website: <https://kernelmag.dailydot.com/comment/column/2264/somalilands-mobile-revolution/>
- Munns, A. K., & Bjeirmi, B. F. (1996). The role of project management in achieving project success. *International Journal of Project Management*. [https://doi.org/10.1016/0263-7863\(95\)00057-7](https://doi.org/10.1016/0263-7863(95)00057-7)
- Nath, A., & Momin, M. M. (2014). Project Scope Management: a Pivotal Tool for Project’s Success. *International Journal of Management, IT and Engineering*.
- Nicholas, J. M. (2017). Project Management for Engineering, Business and Technology. In *Project Management for Engineering, Business and Technology*. <https://doi.org/10.4324/9781315676319>
- Ogunberu, A O, Olaposi, T. O., & Akintelu, S. O. (2016). *Factors Affecting the Choice of Project Scope Management Practices among Telecommunication Organizations*. 16(3).
- Ogunberu, Adebayo Olufemi, Olufemi, A. S., & Olaposi, O. (2018). Application of project scope management practices on project success among telecommunication organizations in Nigeria. *International Journal of Development and Sustainability*, 7(2), 518–532.
- Omar, M. A., Fashina, A. A., & Fakunle, F. F. (2020). The status quo of Somaliland construction industry: A development trend. *PM World Journal*, IX(V), 1–18.
- Parker, R. C. (1993). Successful Project Management ? A Step by Step Approach with Practical Examples. Second Edition. *R&D Management*, 23(4), 354–354.
-

<https://doi.org/10.1111/j.1467-9310.1993.tb00841.x>

Phillips, J. J., Brantley, W., & Phillips, P. P. (2011). The Project Management Lifecycle. In *Project Management ROI* (pp. 15–30). <https://doi.org/10.1002/9781118122587.ch2>

Pinto, J. K., & Slevin, D. P. (1988). Project Success : Definitions and Measurement Techniques. *Project Management Journal*.

Project Management I. (2014). Implementing Organizational Project Management: A Practice Guide. In *Newtown Square, Pennsylvania: Project Management Institute, Inc.*

Sheikh, A. A., Fakunle, F. F., & Fashina, A. A. (2020). The status quo of building codes and construction practices in Somaliland: practitioners' perceptions. *SPC Journal of Environmental Sciences*, 2(1), 4–11.

Singh, S. (2017). Project Management and Strategic Objectives of the Organization. *Universal Journal of Industrial and Business Management*.

<https://doi.org/10.13189/ujibm.2017.050102>

Taylor, A. (2000). IT projects: sink or swim. *The Computer Bulletin*, 42(1), 24–26.

<https://doi.org/10.1093/combul/42.1.24>

Too, E. G., & Weaver, P. (2014). The management of project management: A conceptual framework for project governance. *International Journal of Project Management*.

<https://doi.org/10.1016/j.ijproman.2013.07.006>

Udechukwu Ojiako, G., Greenwood, D., & Johansen, D. (2005). Modelling new success criteria for projects in the ICT industry. *Journal of ICT*.

Young, T. L. (2007). The Handbook of Project Management : A Practical Guide to Effective Policies, Techniques and Processes. In *Kogan Page Ltd*.

About the Authors



Sakariye Mahamed Abdilahi

Hargeisa, Somaliland



Sakariye Mahamed Abdillahi is a member of Dr. Adebayo's research group at Gollis University and an Assistant Lecturer in the department of telecommunication engineering at same University. Sakariye hold a B.Sc. degree in Telecommunication Engineering and Master of Arts in Project Management from Gollis University, Hargeisa, Somaliland. He is proficient in communication, training, organization, the use of social media outlets, and the use of Microsoft Office packages such as MS Word, MS Excel, and MS Power point.

His research interests evolve around the application of project management knowledge areas to telecommunication projects, project and engineering management, application of project management knowledge areas to small and medium enterprises (SMEs) etc.

Sakariye can be contacted on zakariemoe@gmail.com



Dr. Adebayo Adeboye Fashina

Hargeisa, Somaliland



Dr. Adebayo Adeboye Fashina is a young certified management consultant (CMC), professional researcher, educator and education management consultant with over eight years of significant international experience working on STEM education, EOMS/Project management research and teaching, science research and teaching, and capacity building at various levels of education across Africa.

Dr. Adebayo hold a Bachelor's degree in Physics/Electronics, MSc. in Theoretical Physics and Ph.D. in Theoretical and Applied Physics. He currently works with Gollis University, Hargeisa as an Associate Professor of Physics and Engineering Management. Prior to his present job, he worked as a Researcher/GTA/Lecturer-B at AUST before joining Kampala International University, Uganda as a Senior Lecturer and later worked as an Associate Professor at William V. S. Tubman University, Liberia. He was nominated for the 2016 Sustainable Energy Africa Awards and shortlisted as one of the three finalists in the "Emerging Leaders" award category at the 2016 Nigeria Energy Forum.

Dr. Adebayo has conducted training workshops, seminars and given speeches/talks/presentations at local and international conferences. He has published more than 20 articles in reputed journals and is an active reviewer of many international journals. He is a motivated, energetic and focused individual with strengths in innovative teaching approaches, interdisciplinary research, data analysis, teacher training and team management. His research interest includes sustainable living, project management, RE policy and management, education organization management system (EOMS), educational planning, photonic nanostructures of materials etc. He is a fellow of African Scientific Institute, USA and the Institute of Management Consultants, Nigeria.

Dr. Adebayo can be contacted on adebayofashina@gmail.com or afashina@gollisuniversity.org



Funke Folasade Fakunle

Lagos Nigeria



Funke Folasade Fakunle is a young female NEBOSH international diploma qualified professional with 10 years of significant QHSE experience in QHSE management, training and consultancy. Being passionate about Health, Safety and Environment (HSE) and management system in the workplace, she has acquired certifications in Process Safety: Hazard Operability study (HAZOP), Lean six sigma (Green Belt Holder), ISO 9001 Lead Auditor, OHSAS 18001 Lead Auditor, AOFAQ Level 3 Award in Education & Training, NEBOSH International Diploma in Occupational Safety and Health, NEBOSH International General Certificate in Occupational Safety and Health, Project Management, Rigging Safety and Inspection etc.

Funke received a B.Sc. degree in Mathematics from the University of Uyo, Akwa-Ibom, Nigeria in 2008. Over the past 10 years, she has gained significant QHSE experience in various industries. These include construction, oil & gas, logistics and transportation, telecommunication,

manufacturing, banking and security sectors. She is a register Professional/Associated Member of the International Register of Certificated Auditors (IRCA), International Institute of Risk and Safety Management (IIRSM), and Society of Petroleum Engineers (SPE).

As an QHSE Consultant/Trainer at present, she conducts QHSE training, consulting and auditing/evaluation exercises that help improve the QHSE Management Systems of various organizations. This allows her to adequately provide her clients with the necessary advisory services that include but not limited to HSE employee orientation training, development, planning and implementation of QHSE Management Systems, QHSE auditing, Environmental Management System, process improvement and so on.

Funke can be contacted on funkefolasade7@gmail.com