

Critical Success Factors towards Collaborative Road Infrastructure Projects Delivery in Tanzania

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Abstract

Infrastructure projects have been known for their importance to the economic development of a nation both during and after their delivery. However, achievement of infrastructure development goal, is reliant on how well their delivery is managed. Prevailing infrastructure projects delivery process in Tanzania has been experiencing inadequate collaboration among project participants. As a result, delivered infrastructure have been characterized by cost and time overrun, low quality and productivity, safety concerns and conflicts consequences. Establishing collaborative success factors in infrastructure delivery could improve the value of infrastructure facility as well as enhance their contribution towards economic development. The objective of the study was to establish critical success factors towards improved collaborative relationship in the delivery of infrastructure projects. Literature review on generic factors for successful collaboration relationship in project delivery process was conducted to collect secondary data. A structured questionnaire was used to collect primary data in order to establish stakeholders' perception on critical success factors for creating and maintaining collaborative relationships during infrastructure project delivery. Respondents targeted for the study were public clients (local government councils) which were represented country wide by council engineers; and consultants and contractors based in Dar es Salaam. Commitment, effective communication, efficient coordination, prompt problem solving and mutual trust were regarded to be the most important factors for collaborative relationship in infrastructure delivery project in Tanzania. Further, this study recommends that it is important to device and adhere to proper means of communication, coordination and problem solving in delivering roads infrastructure projects.

Keywords

Critical success factors, Collaboration and Infrastructure Project delivery.

1 Introduction

Economic development of a country is dependent on infrastructure facilities the country maintains (Arimah, 2017; Zhang & Ji, 2018; Yang, Huang, Huang, & Chen, 2020). Infrastructure is known for its role towards gearing development through facilitating movement of people and goods. In view of the above, countries seeking growth and development, must embrace effective and functional infrastructure facilities, as poor performance of infrastructure has a lot of implications to the well-being of the community and the country's economy as a whole (Arimah, 2017). Poorly delivered infrastructure's effect is more easily felt in cities and urban areas due to impaired mobility. Improved infrastructure can deliver major benefits capable of achieving Sustainable Development Goal (SDG) to make cities and human settlements inclusive, safe, resilient and sustainable (Arimah, 2017).

Arimah (2017) further states that economic growth and hence prosperity of African cities will depend on the extent to which infrastructure is adequately delivered, upgraded and maintained.

Despite the significance of the road infrastructure facilities to the economy, poor performance of their delivery has been a persistent challenge in many developing countries including Tanzania. Studies conducted in developing countries, (Banobi & Jung, 2019; Jongo, Tesha, Kasonga, Teyanga, & Lyimo, 2019; Mhando, Mlinga, & Alinaitwe, 2018; Sambasivan, Deepak, Salim, & Ponniah, 2017; Raphael & Phillip, 2016; Nyangwara & Datche, 2015; Kikwasi, 2013; Ramanathan, Narayanan, & Idrus, 2012; Eriksson and Westerberg, 2011) have revealed that infracture and construction projects in general are characterised by poor performance at all stages of their development. As a result they impose severe constraints on economic development since the required infrastructure are either not made available or escalate their delivery and maintenance costs due to poor quality (Eriksson and Westerberg, 2011; Chen, Merrett, Lu, & Mortis, 2019).

Road infrastructure construction projects are very complex and involve high-risk (Chen, Merrett, Lu, & Mortis, 2019; Bennett & Peace, 2006). The uniqueness of products, the separation between design and construction in the traditional delivery system are among the root causes of the problems of poor performance in the construction industry (Naoum, 2003; Phua & Rowlinson, 2004; Eriksson & Laan, 2007). Construction undertaking being of project nature, are characterized by non-routine activities which have a high potential for misunderstanding arising from confusion over conflicting and multiple interpretations of causation that may affect their performance (Nikas & Argyropoulou, 2014). The limitations of the traditional delivery system adopted by the public bodies, the competitiveness and the perception of risks, lead to adversarial relationships among teams and hence impeding delivery of projects. Chen & Chen, (2007) states that problems in project teams have been caused by divergent objectives, motivations and perspectives held by team members. In the traditional procurement method, project performance depends on the supervision and inspection of the client representatives (Kashiwagi, Sullivan, Greenwood, Kovell, & Egbu, 2005). The lowest evaluated bid award system is applied based on the assumption that, first project plans and designs are complete, perfect and unambiguous in terms of constructability; and secondly, that, given the first assumption, all that is remaining is to engage a contractor to carryout the works for the least amount of money under the supervision and inspection of the client or client representative. Contrary to these assumptions, most of the time plans and designs are not error free and therefore require regular reviews after construction commences (Chen, Merrett, Lu, & Mortis, 2019; Kadefors, 2004). In order to facilitate prompt and efficient review of these documents, all construction participants are to be involved and work together to enable successful delivery of projects, hence the need of collaboration

In the Tanzania, cost and time overrun and poor quality, environmental, health, safety performances and confrontational relationship among participants of the project are among the prevailing challenges in project delivery (Raphael & Phillip, 2016; Sambasivan et al., 2017; Mhando et al., 2018; Kalamata, 2018). Lack of sense of cooperation among the project teams fuelled by dissimilar objectives, competition and risks in the traditional delivery system has been identified to partly impede successful project delivery. Collaborative decision making could help improve infrastructure delivery and hence performance through shared expertise and experience amongst project parties. (Chen & Chen, 2007; Chen, Merrett, Lu, & Mortis, 2019) It is believed that collaborative working relationships in the delivery of road infrastructure will create a working environment that will facilitate achievement of overall project goals (Chen, Merrett, Lu, & Mortis, 2019; Bresnen and Marshall, 2002; Cooke-Davies, 2002; Phua & Rowlinson, 2004; Akintoye & Main, 2007).

This study has proposed collaborative working relationship within the traditional delivery system to improve project performance. However, critical success factors to harness available opportunities for collaboration in the traditional project delivery system in Tanzania, have not been well established.

With the existing gap on how to harness the available opportunities of collaborative working relationships in the traditional delivery system in mind, this research intends to establish the critical success factors for working collaboration amongst the project team members towards improved road infrastructure projects delivery in Tanzania.

This section has presented the introduction of the paper, where the background, problem statement and the research gap have been established. It is followed by a literature review in section two. In the third section, the methodology of the study has been covered. Research findings and discussion, has been presented in section four, while conclusion and direction for further studies, have been covered in section five.

2 Literature Review

Collaboration in project delivery can bring many advantages including risk sharing, cooperative problem solving, and increasing competitive advantages, as well as improved ability to deliver the project to the customers' requirements. (Chen, Merrett, Lu, & Mortis, 2019) Collaborative working in the delivery of infrastructure project can be considered as a strategy that can be applied to different forms of contract models rather than being viewed as an alternative contract form. (Chen, Merrett, Lu, & Mortis, 2019) Essentially, collaboration among different parties via a mutually developed, formal strategy of commitment and communication is focused on achieving "win-win" results for different project participants. (Chen & Chen, 2007) Successful project collaboration is based on multiple management and organizational factors, and determining which factors have the greatest influence over project success or failure. Establishing which critical success factors (CSFs) have the greatest influence requires detailed analysis of multiple factors of varying influence from experience and knowledge acquired from previous construction projects.

Studies on collaboration in construction projects have been the subject of concern over the past five decades. (Nikas & Argyropoulou, 2014; Chen, Merrett, Lu, & Mortis, 2019) Within this period, researchers have embarked on establishing success factors towards collaborative working in the delivery of projects. Despite the fact that the subject area has been very popular, there is still a need to remind ourselves as to what exactly is entailed by project success factors. Cooke-Davies, (2002), state the distinction between success criteria which are the measures by which success or failure of a project is judged, and success factors as those inputs to the management system that lead directly or indirectly to the success of the project. Project success factors, therefore are those attributes which when known and followed by project participants, can lead to successful project delivery. Having this definition in mind, critical success factors (CSFs), are therefore the most important factors among many that are more likely to positively affect performance of a construction project than others. Many studies have been conducted to investigating different aspects of critical success factors (CSFs) for projects using a wide range of methodologies. (Chen, Merrett, Lu, & Mortis, 2019)

Cooke-Davies, (2002) examined success factors for projects based on analysis of multinational firms respondents. The focus was on answering three key questions: "what factors lead to project management success", "what factors lead to a successful project", and "what factors lead to consistently successful projects." The study identified 12 factors which in one way or another are critical to successful project outcomes. Chen & Chen, (2007) identify, rank and clustered critical success factors for construction partnering in Taiwan using factor analysis approach. Gudienė, Banaitis, Podvezko, & Banaitienė, (2014) applied the Analytic Hierarchy Process (AHP) to identify and rank the relative importance of 10 CSFs from data collected from selected construction projects in Lithuania. In the findings, it was clear that having realistic project goals and project planning have the greatest influence over project success. Jelodar, Yiu, & Wilkinson, (2016) identify and conceptualise the possible attributes associated with relationship quality attributes in construction

projects and explain how these qualities could be maintained and developed in construction procurement practices. In their study, they conducted an extensive literature review to establish the relationship quality attributes.

The fact that infrastructure construction projects are complex and that they engage many different players, call for a strong collaboration relationships among the participants for successful delivery. Despite this requirement, there have been very few studies on collaboration critical success factors in the infrastructure project delivery in the African continent south of the Sahara as a whole and Tanzania in particular. Several researches undertaken in Tanzania, though not dealt with directly, but have indicated the need for collaboration relationships among project participants in delivering projects. In his study, Kalamata, 2018, identifies delay in handling mismatches between project plans and actual site conditions to be among the causes of cost overruns for the donor funded projects in Tanzania. The delay in dealing with the discrepancies of dissimilarities between plans and site situations, could be attributed to inadequate sense of collaboration among the project team members.

In the study to analyse projects delays in Tanzania construction industry, Sambasivan et al., (2017), have linked escalation of transaction costs to project delays. They further asserted that the rise of transaction costs which is facilitated by the nature of coalitions among different parties with diverse economy and social perception, leads to among others, disputes in construction project delivery. This study therefore, articulate the need for a strong collaboration among participants in project delivery to avoid disputes that may arise due to hiking of project transaction costs. Again here, there is an indication towards stating that, disputes arising in project delivery are efficiently handled where there is collaborative working relationship among project team members. Mhando et al., (2018) developed a proactive mitigation model to reduce detrimental variations in construction projects. In the study, it has been established that, thorough involvement of project stakeholders and precise contract management practice formed the key features among the five features of the model developed. These features of the proposed model, could be facilitated and enhanced by a collaborative working relationship in delivering projects. Raphael & Phillip (2016), in their study to assess the critical factors that affect project quality performance in project financed by the government, state that, project collectivism that is built by commitment of project stakeholders, is key towards project success. In other words, the authors assert that collaboration working relationship is important towards successful project delivery in the tradition delivery system.

Though the above studies recognize the importance and need of collaborative working relationships in public infrastructure project delivery in Tanzania, but they have not harnessed the possibility of improving project performance through collaborative working relationships. Studies to establish collaboration critical success factors are essential towards improvements on infrastructure projects delivery. This study took an initiative towards filling the gap so as to open opportunities for further research. To achieve the goal of this study, a review of literature related to working collaboration success factors from past researches was performed. A number of success factors were established, and factors that were common among different studies, were considered for this study. Table 1 below presents 19 identified factors of collaboration in project delivery.

Table 1. Factors of collaboration working in project delivery

Author(s)	Factors
Black, Akintoye, and Fitzgerald, (2000); Cheng, Li, and Love, (2000); Cheng and Li, (2002); Chen, Huang, Lin, and Mortis, (2008); Chen and Kao, (2010); Naoum, (2003); Tang et al., (2006); Chan et al., (2004)	Mutual trust
Black, Akintoye, and Fitzgerald, (2000); Cheng, Li, and Love, (2000); Cheng and Li, (2002); Chen, Huang, Lin, and Mortis, (2008); Chen and Kao, (2010); Chen and Chen, (2007); Tang et al., (2006); Chan et al., (2004)	effective communication
Black, Akintoye, and Fitzgerald, (2000); Cheng, Li, and Love, (2000); Cheng and Li,	commitment from

(2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010); Chan et al., (2004)	senior management
Cheng and Li, (2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010)	clear definition of responsibilities
[Black, Akintoye, and Fitzgerald, (2000); Cheng and Li, (2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010); Chen and Chen, (2007); Akintoye and Main, (2007); Naoum, (2003)	acting consistence with objectives
Black, Akintoye, and Fitzgerald, (2000); Cheng and Li, (2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010)	dedicated team
Black, Akintoye, and Fitzgerald, (2000); Cheng and Li, (2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010)	flexibility to change
Black, Akintoye, and Fitzgerald, (2000); Cheng and Li, (2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010); Chen and Chen, (2007)];	commitment to quality
Tang et al., (2006)	prompt problem solving
Cheng and Li, (2002); Naoum, (2003); Chan et al., (2004)	joint problem solving
Black, Akintoye, and Fitzgerald, (2000); Cheng, Li, and Love, (2000); Cheng and Li, (2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010); Chan et al., (2004)	long term perspective
Black, Akintoye, and Fitzgerald, (2000); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010)	total cost perspective
Black, Akintoye, and Fitzgerald, (2000); Cheng and Li, (2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010)	formation at design stage
Black, Akintoye, and Fitzgerald, (2000); Cheng and Li, (2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010)	good cultural fit
Black, Akintoye, and Fitzgerald, (2000); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010)	financial security
Black, Akintoye, and Fitzgerald, (2000); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010); Tang et al., (2006)	commitment to win-win attitude
Black, Akintoye, and Fitzgerald, (2000); Cheng, Li, and Love, (2000); Cheng and Li, (2002); Huang, Lin, and Mortis, (2008); Chen and Kao, (2010); Akintoye and Main, (2007); Chan et al., (2004)	availability of resources
Black, Akintoye, and Fitzgerald, (2000); Akintoye and Main, (2007); Huang, Lin, and Mortis, (2008); Tang et al., (2006)	fair treatment
Cheng, Li, and Love, (2000); Cheng and Li, (2002); Chan et al., (2004)	efficient coordination

This section has defined and shown the distinction between success criteria and success factors. It has also depicted the importance of success factors in delivering infrastructure projects. The section has finally identified factors for collaboration in delivering infrastructure projects. The following section describes the methodology adopted in order to achieve the objective of the study.

3 Research Methodology

3.1 Research Design

The objective of the study was to establish critical success factors for collaborative working relationships in infrastructure project delivery in Tanzania. Using a quantitative research approach, data was collected through a questionnaire survey. 19 factors established through literature review were tabulated in a questionnaire form. The questionnaire was divided into two main parts which covered for all; client, consultants, and contractors; Part I of the questionnaire enquired general information of respondents. These included among others, experience in the construction industry, education qualification and category of registration in case of contractors. Part II included the list of the factors identified from a literature, in which respondents were asked to rate the degree of criticality of each factors using a 5-point Likert scale. The ratings used to determine the degree of participants' perceived contribution of each factor towards establishing collaboration working relationship (criticality) were; strongly agree = 5, Agree = 4, Neutral= 3, Disagree = 2, strongly disagree = 1. Factors that received high ratings with apparent and relative ranking agreement among all stakeholders (clients, consultants and contractors) participated in the study, were considered to be

important in establishing working collaboration. Hence, they were regarded as critical success factors towards collaborative infrastructure project delivery.

3.2 Population and Sample of the Study

The study population consists of construction industry stakeholders including mainly, clients (local councils' engineers), consultants and contractors. Public clients were chosen over private ones since they are the major owners and financiers of public road infrastructure. In addition, all public bodies are required by the procurement legislation to use defined procurement methods. Although, a few consultants and contractors (50 from each) were involved in the research at the convenience of the researcher to validate the study, judgmental sampling was adopted to choose public clients as the main target over the other stakeholders. This was due to the fact that the researcher sees to it that public client is the prime mover towards most improvements efforts sought in the society. On the other hand, convenient sampling was used as collection of data was done from council engineers who were attending an annual conference organized by the Ministry of Infrastructure in which sixty six (66) council engineers were targeted. Giving questionnaires to individuals who were accessible and willing to participant in the study, also formed a convenient sampling technique.

3.3 Response profile

The proportion of the respondents comprised of 58% clients (local council employee), 62% consulting firms, and 68% contractors. Majority of respondents were engineers (94%) with bachelor's degree as their minimum educational qualification. With regard to the experience of respondents, it was established that the majority of respondents (77%) have work experience of more than 5 years in construction, of which, 27% have experience of more than 10 years. Majority of the contractors (85%) in the study were those registered to operate as contractors class four (IV) to six (VI) while the remaining portion (15%) were class one (I) contractors. Since the majority of the Contractors respondents are between class one and six, their responses can be considered credible for the study. Class of categorization of contractors participated in the study indicates they must have implemented a large number of high value projects and faced collaboration issues. Furthermore, experience of working in the construction industry and education qualification of respondents prove to give valid responses for the purpose of the study.

3.4 Data Analysis

Using a 5-point rating scale, the respondents were asked to give their opinion by rating the factors identified from the literature to show the degree of contribution (criticality) of the established factors towards forming collaboration relationships. In the analysis of the collected information, the computation of Relative Importance Index (RII) of each factor rated by the respondents was adopted. The weighted average rating of each factor was computed using equation 1 below.

$$RII = \sum_{i=1}^5 \frac{w_i x_i}{5 * N} \quad (1)$$

Where; RII = Relative Importance Index, w = weighting given to each factor, x = Score frequency of i^{th} response to each factor, N = number of respondents for a particular influence factor.

4 Findings and Discussion

The 19 factors contributing to project collaboration relationships were mapped in terms of criticality represented by the Relative Importance Index (RII) as described in the previous section. The results of a questionnaire survey are presented in Table 2 below. From the analysis of results, it has been established that, council engineers regard clear definition of responsibilities ($RII=0.874$) to be the

most critical success factors for collaboration working relationship. Commitment to quality (RII=0.870) has been regarded as the second most critical success factor. In addition to clear definition of responsibilities and commitment to quality; effective communication (RII=0.863), mutual trust and prompt problem solving (all with RII=0.858), were identified to make the top five most critical factors as rated by the clients group. On the other hand, good cultural fit was the lowest (RII=0.742) rated factor, indicating that, clients consider cultural issues to be of less importance in influencing collaboration among project participants.

Respondents from the consultants group perceive commitment to quality (RII=0.923) to be very critical towards forming collaborative working relationships. The second ranked factor by consultants in establishing collaboration among project teams, is effective communication (RII=0.890). Among the already mentioned factors, consultants' top five list of factors towards successful working collaboration relationships, includes joint problem solving (RII=0.884), efficient coordination (RII=0.871) and dedicated team (RII=0.865). Good cultural fit was the lowest rated (RII=0.755) factor by consultants, indicating that, consultants are in agreement with clients and consider cultural issues to be insignificant towards forming collaboration among project participants. The findings of the study indicates that contractors considered effective communication (RII=0.988) to be a very important factor in form collaborative working relationship. Effective communication, was followed by efficient coordination (RII=0.959) and commitment to quality (RII=0.953). Mutual trust and prompt problem solving, with relative importance indexes of 0.941 and 0.935 respectively, form the top five list of factors in establishing collaborative working relationships together with effective communication and efficient coordination. It was also noted from the results that, dedicated team (0.918), availability of resources (0.918), commitment to win-win attitude and fair treatment (both 0.906) and joint problem solving (0.900), were rated very high by contractors, indicating the importance of these factors towards forming collaborative working relationships in undertaking construction projects.

Table 2: Factors for Collaborative working relationships

Factors for success	Council Engineers		Consultants		Contractors	
	RII	Ranking	RII	Ranking	RII	Ranking
Mutual trust	0.858	4	0.839	12	0.941	4
Effective communication	0.863	3	0.890	2	0.988	1
Commitment from senior management	0.843	7	0.839	13	0.812	14
Clear definition of responsibilities	0.874	1	0.858	8	0.888	11
Acting consistence with objectives	0.827	9	0.839	14	0.888	12
Dedicated team	0.800	12	0.865	5	0.918	6
Flexibility to change	0.805	11	0.826	16	0.771	18
Commitment to quality	0.870	2	0.923	1	0.953	3
Prompt problem solving	0.858	5	0.858	9	0.935	5
Joint problem solving	0.842	8	0.884	3	0.900	10
Long term perspective	0.773	16	0.865	6	0.771	19
Total cost perspective	0.800	13	0.806	17	0.776	17
Formation at design stage	0.768	17	0.806	18	0.782	15
Good cultural fit	0.742	19	0.755	19	0.782	16
Financial security	0.768	18	0.852	10	0.871	13
Commitment to win-win attitude	0.800	14	0.845	11	0.906	8
Availability of resources	0.816	10	0.865	7	0.918	7
Fair treatment	0.800	15	0.839	15	0.906	9
Efficient coordination	0.847	6	0.871	4	0.959	2

Furthermore, from the results of the study, it has been indicated that there is a relative agreement among respondents that effective communication (ranked third by council engineers, second by consultants and first by contractors), commitment to quality (ranked second by council engineers, first

by consultants and third by contractors) are very important factors towards collaborative working relationships. There is also a relative agreement on the importance of efficient coordination towards creating collaborative working relationships in delivering infrastructure projects between consultants (ranked 4th) and contractors (ranked 2nd). The agreement among the parties on the relative ranking of the factors towards their contribution to collaborative working, can be interpreted that respondents to the study regard effective communication and efficient coordination to be important factors towards achieving project quality as one of major metric for project success. It can therefore be deduced from the findings of the study that respondents believe that attaining quality and other project goals depend very much on the proper project communication and coordination among the project parties as depicted by researches undertaken previously (Erikson and Laan, 2007; Papadopoulos & Pantouvakis, 2010; Strickland, 2010).

In addition, by rating very high mutual trust (0.941), contractors are of the opinion that mutual trust among project stakeholders forms a significant ingredient towards successful project team collaboration. This indicates that contractors believe that trust, if built within the project team, can enhance communication among project participants as well as facilitating contractors' self-performance control during project activities execution. It means that contractors have the opinion that the current project-operating situation to be dictated by owners through consultants in which contractors have to follow and comply with instructions is not doing well to the construction industry (Strickland, 2010).

Contractors also consider that prompt solving of construction problems (0.935) is a very important factor towards establishing project team collaboration. It should be noted that problems in undertaking construction projects are inescapable, therefore prompt and joint solutions are vital to increase trust and building dedicated teams (Erikson and Laan, 2007; Strickland, 2010). Generally, the results of the study show that contractors seem to have rated the collaboration success factors very highly. The interpretation of their high ratings could be that they are the ones who are more affected by the current delivery system and hence are in favour of collaboration working relationships direction. On the other hand, consultants and contractors respondents relatively concurred in their opinion by ranking equally availability of resources (7th ranked by each). Though the ranking was the same by each party, however, contractors rated this factors very highly (0.918) indicating the way they perceive the important availability of resources towards collaborative relationships and therefore project success. (Jelodar et al., 2016; Cheng, Li, & Love, 2000; Chan et al., 2004)

5 Conclusions and Further Research

The objective of the study was to establish critical success factors for collaborative working relationships towards improved road infrastructure projects delivery and performance. The findings of the study indicate that there are quite a number of critical success factors that can facilitate collaborative working relationship in delivering road infrastructure projects in Tanzania. In analyzing criticality index for the 19 established factors for collaborative working relationship, it was observed that effective communication and commitment to quality are the top most critical factors. These two factors together with efficient coordination, prompt problem solving and mutual trust, made the list of the top five critical success factors for collaboration working relationships in delivering roads infrastructure projects in Tanzania. This implies that if these factors are considered, may facilitate collaborative working relationships and hence help improve the delivery and performance of road infrastructure construction projects.

The study recommends that it is important to device and adhere to proper means of communication, coordination and problem solving in delivering roads infrastructure projects. Effective communication and coordination among project parties at great extent could assist in road

infrastructure projects performance improvement. If parties to projects will coordinate and convey information to each other quickly, will avoid problems in delivering projects and also improve mutual trust among them. This study made an attempt to contribute to the literature on collaboration relationship in delivering infrastructure projects in Tanzania. It therefore paves a way for further research on working collaboration in order to improve performance of infrastructure project delivery. Among others, further research is recommended on the relationship among the factors. Establishment of relationships among factors of collaboration success, will help to identify interdependences that exist among the factors.

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