Perceived Benevolence Trust, Perceived Competence Trust, and Onshore Information Sytems Development Project Success

The Mediating Effect of Knowledge Transfer

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Abstract— **Despite the increased organizational spending on information systems outsourcing, delivering business values from outsourcing initiatives is still a challenge for business managers in a developing economy. In recent studies, there has been much interest in addressing the challenge from a relational perspective. This study examines whether perceived benevolence trust and perceived competence trust affect knowledge transfer, which, in turn, impacts onshore information systems development outsourcing success within the context of Ethiopia. Drawing from the social exchange theory, knowledge transfer, and information systems literature, a conceptual model is developed and it reveals that knowledge transfer mediates the effects of perceived benevolence trust and perceived competence trust on onshore information systems development outsourcing success. The findings contribute to research and practice in information systems outsourcing relationships.**

Keywords-Perceived Benevolence Trust; Perceived Competence Trust; Outsourcing; Information Systems.

I. INTRODUCTION

Information Systems Development (ISD) has become an important organizational activity for strategic and operational purposes [1]. Due to the highly competitive and rapidly changing business environment, organizations have been under great pressure to seek out strategies for the successful development and delivery of Information Systems (IS) products and services [1]. One of the popular strategies devised by client organizations is outsourcing [2].

Information Systems Development Outsourcing (ISDO) refers to a contractual agreement between a client and a vendor organization for the provision of IS development and/or implementation services, whereby the client contracts all or part of its ISD activities to the vendor [3]-[5]. ISDO approaches and practices are becoming well established and accepted business practices for reducing operational costs while gaining business value [6]. In the year 2017, worldwide Information Technology Outsourcing (ITO) contracts that worth USD 137.2 billion were signed [7]. The growth rate of ITO is estimated to be 2.4% Compound Annual Growth Rate (CAGR) from 2017 to 2021 [8]. Besides, a market survey by Gartner shows that ITO has a 60% contribution in the worldwide IT services market and with its higher contribution the market is estimated to reach $1.1 trillion in 2021 [9]. A rising trend of ITO in some developing countries like India, China, Brazil, Russia, and Malaysia has also been observed in recent years. On the other hand, the revenues from the outsourcing sector in Africa reached nearly US$ 2 billion in 2014, projected to grow at 30–40% annually, but Ethiopia has yet to reap the benefits from the sector [10].

Although ISDO market in Ethiopia is immature, most software development projects are undertaken by means of onshore outsourcing [11]. For example, in the five-year strategic plan (2011-2015), the Government of Ethiopia had shown a commitment for the implementation of 219 e-government projects with an estimated budget of 201.5 Million US dollars [12] by inviting local vendors to some of these ISD projects. Nevertheless, Information Systems Outsourcing (ISO) failures are reported in developing countries [13] [14].

In spite of the high failure rate of ISDO projects, business managers have continued to increase their ISDO investments, as they perceive value in it [15]. However, exhibiting the values of outsourcing remains a challenge for both the service provider and the client organizations [16] [17]. For example, Nuwangi et al. [18] described ISDO as complex process mainly due to multiple, and often conflicting client requirements, incongruence in interpreting client requirements, changes and uncontrolled growth in a project's scope and the existence of many user groups. Primarily, ISD is a knowledge-intensive work [19] and the required knowledge is dispersed across domains of specialization (e.g., business and technical knowledge) [20] [21]. Clients have rich business domain knowledge, but shallow technical knowledge. On the other hand, technical knowledge is mainly owned by vendor organizations, but they typically lack business domain knowledge [22]. Due to these factors, providing the agreed deliverables on time and with the required quality has become extremely difficult for vendors [23]-[25].

Prior studies have given attention to exploring the values of ISDO from the relational perspective because building and sustaining a flexible relationship can help outsourcing partners to overcome outsourcing challenges [17][26]. To

successfully build the system, therefore, outsourcing partners need to interact and cooperate with each other [21] [26]. Their interaction and cooperation are highly required for exchanging knowledge about business needs, preferences, approaches to problems, as well as use and technical possibilities of the new information system [26] [27].

Some knowledge transfer can take place between outsourcing partners due to contractual obligations [16]. However, it is harder to formalize and communicate tacit knowledge (e.g., business processes and technical know-how) [28]. This type of knowledge creates difficulties on actors to formalize as well as to communicate as it is deeply rooted in action, commitment and involvement in a specific context [16] [29]. Hence, contractual requirements are insufficient for effective knowledge transfer to occur between parties engaged in ISO deals [17]. Lee et al. [17] further argued that it is difficult to specify every rule and agreement in a contract due to the complexity of outsourcing contracts. As a result, outsourcing partners need to pay heed to unwritten contracts to supplement the more formal contracts to achieve a successful outsourcing relationship. According to [30], trust is one of the intangible factors that could not be easily captured in the formal contract.

Trust has been widely studied in the social exchange literature as one of the relational factors that lead to successful business relationships [17]. As clients and vendors rely on each other's knowledge, trusting each other enables partners to work together and to transfer the necessary knowledge during the outsourced information systems development projects. Ko [26] suggests that trusting relationships lead to greater knowledge exchange as it facilitates voluntary exchange, which promotes knowledge transfer activities.

Although several scholars demonstrated the importance of clients' trust in vendors for successful knowledge transfer (e.g., [17] [26]), the impact of the perceptions of the vendors being trusted by their clients on knowledge transfer to the clients is a potentially critical, but overlooked issue. According to Serva et al. [31, p. 627], "trust forms in the mind of the trustor", and therefore others cannot observe it. In the client-vendor relationship, the vendor is the main source of technical knowledge (e.g., technical know-how and ISD methodology) and the client is the recipient of the vendor's technical knowledge. In this study, the vendor is a knowledge source and the client is a knowledge recipient. During their relationships, the vendor may or may not feel trusted by the client although the client has trust in its vendor. This unidirectional conceptualization of trust (i.e., knowledge recipient's trust in a knowledge source) cannot provide a complete picture of the knowledge transfer behavior of actors engaged in a social exchange relationship. Knowledge recipients' trust in the knowledge sources needs to be expressed in actions so that knowledge sources can aware of recipients' trust in them and get actively involved in the knowledge transfer process. Thus, it is the observed trust-related actions of a partner that influence the level of trust formed in another partner [31].

Furthermore, literature so far has mainly focused on knowledge transfer in the offshore information systems

development context of developed countries [2], where both the outsourcing markets and knowledge transfer experience are relatively matured when compared with that of developing economies. In addition, there appears to be a major shift toward domestic outsourcing [1]. Addressing this gap from the context of a developing economy is significant to create an understanding of outsourcing practitioners on how to facilitate knowledge transfer successfully across organizational boundaries and to drive greater business value from their ISO initiatives. Therefore, it is necessary to examine the kinds of social contexts in a developing economy in general, and Ethiopia, in particular, that can enhance knowledge sources' perception of being trusted by their recipients and how this felt trust is related to knowledge transfer and ISDO success. Therefore, this study seeks to address the following research question: To what extent does knowledge sources' perception of being trusted in their competence and benevolence by their recipients impact knowledge transfer, and, ultimately, onshore ISDO success?

In the following sections, a presentation of the conceptual underpinnings of the theoretical model that draws upon multiple areas of research, including information systems, trust, and social exchange theory is made. Then, the research model is developed and hypotheses are formulated. Thereafter, a plan for further study is briefly described. Finally, the paper concludes with a discussion of the implications of the study.

II. BACKGROUND LITERATURE

A. Information Systems Outsourcing Success

Defining information systems outsourcing success has been a challenge for the field of IS. Previous studies defined ISO success in different ways. For instance, outsourcing success is described as the attainment of strategic, technological and economic benefits through outsourcing activities [32]. By extending Grover et al.'s [32] model of outsourcing success, Lee and Kim [33] introduced business perspective and user perspective as dimensions of outsourcing success. Additionally, overall satisfaction is integrated into the ISO success definition [34]. In sum, different studies show that ISDO success is a multi-dimensional construct consisting of strategic, economic, technological, and relational benefits and overall satisfaction from the ISDO arrangements.

B. Trust

Due to the complex nature of trust, prior research has given diverse interpretations of trust. According to McAllister [35], there are two key dimensions of trust: (1) affect-based, or benevolence trust, and (2) cognitive-based, or competence trust. Affect-based is relationship-oriented [36] and it is largely based on ''emotional'' bonds between individuals [37]. This dimension of trust is the belief about reciprocated care and concern [35]. In contrast to affect-based, cognitive-based trust is the belief about exchanging partner's competency [35]. It is mainly task-oriented [36]. According to Chowdhury [37], a separate investigation of these two dimensions of trust is important as each has a

distinct pattern of association with knowledge transfer. Besides the complexity of trust, the literature is ambiguous about the multilevel nature of trust [38]. Zaheer et al. [38] empirically find that the effects of trust in the inter-organizational context are distinct from the individual level of analysis. Thus, this study focuses on inter-organizational perspective of trust.

Earlier IS studies have examined trust as an antecedent of knowledge transfer [17] [26]. In order to ensure successful transfer of knowledge, the existence of trustful relationship between outsourcing partners is necessary [39]. Knowledge transfer as a mediator factor is introduced between trust and onshore ISDO success. This assumption is consistent with prior works (e.g., [17] [26]). Empirical evidences have also shown that both benevolence and competence trust have a positive influence on knowledge transfer at the dyadic, team, and individual levels [37] [40] [41]. Accordingly, this paper proposes a trust-based relationship model (see Figure 1) for onshore ISDO success.

III. SOCIAL EXCHANGE THEORY (SET)

There are a number of theories to be used by researchers to gain a comprehensive understanding of the relationships among trust, knowledge transfer, and ISDO success. Social exchange theory (SET) is one of the most prominent theories to understand the social behavior of humans in an economic context. According to SET, actors exchanging resources voluntarily via a social exchange relationship by expecting some future returns [42]. SET builds on essential social norms' constructs, for example, trust. Trust is one of the relational exchange variables that leads to a successful exchange relationship [43]. It assumes that both parties involved in the exchange relationship invest without any guarantee that such an investment will produce a future return so that the risk of this investment requires trust [44]. While the origin of SET is at the individual level, it has also been used to explain inter-organizational behavior during economic undertakings [42]. Creating inter-organizational relationships helps organizations cope with resource scarcity while achieving goals of reducing vulnerability and uncertainty [45].

Social exchange theory has served as an underlying theoretical model for examining outsourcing relationships and client-vendor exchanges [45]. In ISDO relationships, clients and vendors carry out different tasks for one another and exchange valuable resources [45]. Here, resources could consist a variety of things including knowledge, ISD methods and approaches, and software packages. In the context of this particular research, the resource exchanged between clients and vendors would be knowledge and the outsourced ISD project is viewed as an economic undertaking. It is often argued that clients bring in business knowledge and vendors bring in technical knowledge [30]. In addition to the social exchange of knowledge, clients and vendors need to act on each other's knowledge, combine it during the development of the outsourced project [46] or implementation of the system [26] [47].

In conclusion, this paper proposes a trust-based relationship model (see Figure 1) for onshore ISD

outsourcing which includes (1) perceived benevolence trust, (2) perceived competence trust, (3) knowledge transfer as a mediator between perceived benevolence trust, perceived competence trust and onshore ISD outsourcing success, (4) onshore ISD outsourcing success as the dependent variable.
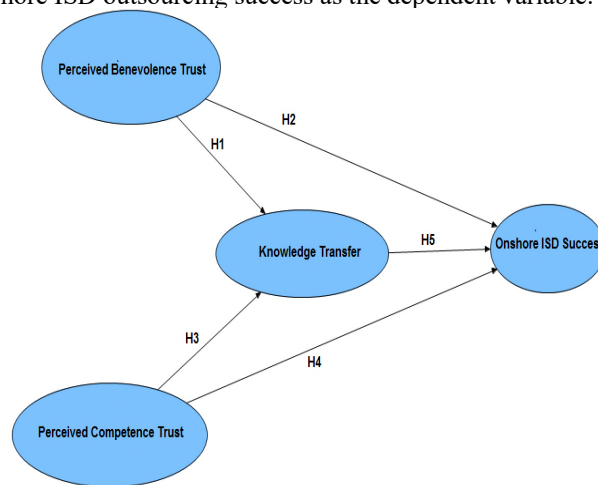

Figure 1. Conceptual Model

IV. RESEARCH MODEL AND HYPOTHESES

The research model as illustrated in Figure 1 proposes that knowledge transfer mediates the relationship between perceived benevolence and perceived competence trusts and onshore ISD success.

A. Perceived Benevolence Trust

In this paper, with respect to the knowledge source, perceived benevolence trust is defined as the perception of the knowledge source being trusted by the recipient to have goodwill or positive intentions toward it [31]. When a client is perceived to have benevolence (goodwill) to the vendor, the vendor will be more sensitive to its clients' needs and expectations and more willing to help the client [41]. For example, when clients engage in risk-taking behaviors such as reduced controlling and monitoring of vendors' system development activities, vendors can get signals about how much clients trust them, and this felt trust could have positive exchange outcomes [48]. Hence, such perception of trust will alleviate the problem of knowledge hoarding and motivate the vendor to engage in the knowledge transfer process [41].

Conversely, when vendors' felt not trustworthy about their benevolence, they tend to be less interested to know the knowledge requirements of a client firm, which, in turn, impacts the quality of knowledge to be transferred to the client. In this regard, Chini [49] argues that effective knowledge transfer necessitates proper identification of the knowledge requirements of a knowledge recipient by a knowledge source. By doing so, the knowledge source can provide "what is appropriate, in a form that is appropriate" [49, p. 65]. Thus, it can be argued that when vendors perceived that their clients see them as not having goodwill

or positive intentions to them, the vendors will not be encouraged to take risks by performing actions that result in their being vulnerable to the clients. Taking the above into consideration, the following hypothesis is formulated:

H1: Knowledge source's perceived benevolence trust is positively associated with knowledge transfer.

Additionally, a direct effect of perceived benevolence trust on onshore ISD project success is proposed. Vendors' perceptions of being trusted by their clients can contribute to outsourcing success as it improves openness and working relationship, gives room for flexibility, and reduces the cost of coordinating activities [50]. On the other hand, when vendors' perceived benevolence trust is low, they become skeptical of the sustainability of their relationships with their clients. Thus, they might give less attention to the acquisition of knowledge about the long-term business strategies of their clients. According to Lacity and Willcocks [51], vendors' deliveries of the promised high-quality software product is hampered by the inadequacy of knowledge about the long-term business strategy of the clients. In general, a short-term oriented relationship of vendors will hamper the values to be derived from the ISO initiatives of the client firms. However, vendors seeking long-term relationships with their clients are committing resources to an ISD project and investing extra time and effort on it [52]. These vendors strive for improving customer value. They give priority to achieving client satisfaction by properly managing their customer value improvement process which is aimed at showing their competence and gain their market reputation [52]. This will generate value and enhance the outsourcing performance to clients.

Feeling of not trusted can also make vendors' development efforts limited to the officially agreed technical systems specifications. In other words, the vendor will be reserved to come up with innovative technical solutions to the client's business problem as the outsourcing service provider may feel that it will be harmed in this particular relationship. Sedera et al. [6] suggest that client satisfaction in outsourcing deals doesn't necessarily mean the delivery of the formal specifications, rather it entails delivering business value beyond that, for example, the introduction of new business processes and adding new software components. Therefore, only the clients' trust in the vendors is not leading to a successful transfer of knowledge to clients, which, in turn, affects ISO success. Rather, the trust-related behaviors exhibited by the recipient matters. Clients can be shared the value generated by vendors [53] when their trust in vendors is practically demonstrable, for example, alignment of risks and incentives associated with contracts. Thus, it is hypothesized that:

H2: Knowledge source's perceived benevolence trust is positively associated with onshore ISD success.

B. Perceived Competence Trust

Empirical studies in ISO settings show that knowledge recipient's perception of a knowledge source's expertise is positively associated with knowledge transfer (e.g., [26] [54]). However, it is unclear what will happen to knowledge transfer to the recipient when the knowledge source has the perception of not trusted by the recipient. Concerning the knowledge source, perceived competence trust is defined as the perception of the knowledge source being trusted by the client about its expertise to accomplish outsourcing tasks and reliability to carry out its promises [35] [55]. Vendors as knowledge sources are more likely to show positive knowledge transfer behavior when they felt trusted by their clients. For instance, if vendors' perception of being trusted by their clients about their competence is high, they tend to be motivated to work together and to put in extra effort for transferring the necessary knowledge to the client [17]. Moreover, vendors' willingness to assist clients to understand their technical knowledge during the IS development activities will be increased, thus knowledge transfer to clients will be facilitated [56]. Vendors' perception of being trusted in their competence will facilitate knowledge transfer to clients as it increases vendors' willingness to transfer knowledge and collaborate whenever necessary [57]. Positive perception of being trusted by clients will improve the client-vendor relationship. This trusting relationship will increase the vendor's engagement with the client's business problem and lead to a greater amount of knowledge transfer to the client [47].

Contrarily, when vendors felt that their clients are in lack of trust about their development capability, they will be less motivated to work collaboratively with the client. This lack of collaboration can create difficulties in outsourcing partners to properly identify and implement the most efficient and applicable technical solution for the problem at hand [6]. Based on the above arguments, the following hypothesis is proposed:

H3: Knowledge source's perceived competence trust is positively related to knowledge transfer.

In this paper, the direct effect of trust on ISO success is also proposed. Empirical studies show that a high level of competence trust in a social exchange relationship improves ISO performance (e.g., [26]). However, the effect of vendors' perceptions of being trusted by their clients about their competence on successfully accomplishing onshore ISD projects is not empirically investigated. A higher level of vendor's felt competence trust makes the vendor cooperative and willing to work closely with the client [50]. As a result, the vendor tends to provide immense support to its client. Besides, the vendor is more likely to work hard to meet its client expectations. These trust related actions of the vendor will motivate the client to engage in a more open and effective communication [50], which enables the vendor to obtain a better understanding of its client's expectations on its tasks and to achieve a higher task performance. Taking the above into consideration, it can be argued that when vendors felt trusted by their clients, they tend to act more responsibly to fulfill the expectations of their clients, thus it leads to higher ISO success. Hence, the following hypothesis is formulated:

H4: Knowledge source's perceived competence trust is positively associated with onshore ISD success.

C. Knowledge Transfer and Onshore ISD Success

Studies on information systems suggest that knowledge transfer is one of the key factors that impacts ISO success. In this study, onshore ISD success refers to the overall organizational benefits obtained from outsourcing by a client firm [58]. These include the client's satisfaction with the developed system, delivery of the project within the agreed time in the contract, derived values from the outsourcing relationship, relationship satisfaction, and overall satisfaction. On the other hand, knowledge transfer is defined as the flow of knowledge from a knowledge source so that it is applied by a recipient [47]. Table I summarizes the definitions of each construct of the research model.

TABLE I.   CONCEPTUAL DEFINITION OF THE CONSTRUCTS

Construct	Definition	Reference
ISDO Success	The overall organizational benefits obtained from outsourcing by a client firm.	[58]
Knowledge Transfer	The flow of knowledge from a knowledge source so that it is applied by a recipient.	[47]
Perceived Benevolence Trust	The perception of the knowledge source being trusted by the recipient to have goodwill or positive intentions toward it.	[31]
Perceived Competence Trust	The perception of the knowledge source being trusted by the client about its expertise to accomplish outsourcing tasks and reliability to carry out its promises.	[35, 55]

Knowledge transfer in ISO relationships increases the level of shared knowledge [59], reduces development costs, and creates a strong relationship between partners [57]. When essential knowledge is transferred effectively between clients and vendors, they can better practice their outsourcing activities and develop a long term outsourcing relationship [17] [60]. Moreover, Teo and Bhattacherjee [16] argue that transferred knowledge will generate value for clients when it is effectively utilized. Similarly, Park and Lee [54] suggest that knowledge transfer can improve information systems development performance due to improved decision making and coordination. In sum, a successful transfer of knowledge will increase the chance of ISO success [61]. Taking the above into consideration, the following hypothesis is proposed:

H5: Knowledge transfer is positively related to onshore ISD success.

V.   A PLAN FOR FUTURE WORK

The proposed research model will be tested empirically with data collected through a survey of client and vendor project managers in a matched-pair sample. A step-by-step procedure recommended by MacKenzie et al. [62] will be used to develop the survey instrument. Measures of ISO success will be adapted from Xu and Yao [63]. For the knowledge transfer, the instrument developed by Teo and Bhattacherjee [16] will be adapted. The measures of perceived benevolence trust and measure perceived competence trust will be adapted from Ko [26]. All constructs of this survey will be measured using multi-item scales with seven-point Likert rating scales.

The unit of analysis of this study is onshore information system development outsourcing projects in Ethiopia. Therefore, project-level data on each project will be collected from two members from the same project: a client project manager and a vendor project manager. The data will be analyzed by using Smart-PLS 3.0. Using the Smart-PLS software, data will be analyzed at two stages. In the first stage, the measurement model will be tested to ensure that the constructs had sufficient psychometric properties (i.e., reliability and validity of the measures). In the second stage, an assessment of the structural model will be done to test and provide statistics on the strength of the hypothesized relationships among the constructs.

VI.   CONCLUSION

This study aims to examine the extent to which the effects of perceived benevolence trust and perceived competence trust on onshore ISD project success are mediated by knowledge transfer in a client-vendor dyad. The conceptual model is an attempt to provide an alternative lens for viewing trust in a client-vendor relationship. This study is expected to have implications for theory and practice. Theoretically, this paper extends prior trust research by introducing the concepts—perceived benevolence trust and perceived competence trust— as essential aspects of trust in a dyadic business relationship. Moreover, it shows that knowledge source's perceived benevolence and perceived competence trusts play important roles in influencing knowledge transfer to the recipient that in turn affects onshore ISD project success. Practically, the results of the study are expected to provide useful insights on how IS/IT managers of a developing economy can create trusting relationships with outsourcing partners for effective knowledge transfer to take place and to ensure onshore ISD project success. First, the study shows that an outsourced IS development project is knowledge-intensive work and its success depends on the successful transfer of the requisite knowledge. This can be achieved through a trusting relationship between outsourcing partners that encourages closer cooperation & open discussions and avoids opportunistic behavior. Second, this study shows the importance of paying due attention to tacit knowledge that is difficult to codify and articulate, but outsourcing practitioners can only transfer it successfully through their direct interactions.

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