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Factors Affecting Successful Implementation of ICT Projects in Afghanistan

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Abstract: Procurement in Afghanistan has been overseen by a number of commissions and independent bodies, as well as the National Procurement Authority, that served as an office of the President. The award and implementation of projects has been a challenge throughout the procurement process, however, there have been specific factors and challenges that affected the successful implementation of IT and ICT projects in Afghanistan. These factors have caused the complete shutdown of the projects, delay in the timeline and signing off, compromise to the quality of equipment and compromise to the quality of implementation in the projects. In any case, the factors have proved to affect successful implementation of IT and ICT Projects in Afghanistan. In this study, the administrative, political and technical factors that have affected successful implementation of IT and ICT projects in Afghanistan, with possible recommendations and scope for future researchers.

Key Words: Information Technology Projects, Information and Communication Technology in Afghanistan, IT and ICT, Factors affecting successful implementation of IT Projects, Procurement of IT and ICT projects in Afghanistan, Success of IT and ICT Projects

I. INTRODUCTION

Information Technology and its subjects are considered comparatively new to Afghanistan due to a war span of over 4 decades. It had the potential to become a sustainable source of growth for the country. (Afghanistan IT Industry Development Policy, 2015-2020). Keeping this in mind, the Ministry of Information and Communication Technology established a deputy ministry of IT in late 2013 in order to address the technical and administrative gaps of IT projects in all government bodies (IT Deputy Ministry, 2013). Together, the deputy ministry, the directorate of e-Government and Cyber Security of Ministry of Communication and Information Technology, the IT directorates of every government body and the National Procurement Authority, priorly looked over by Special Procurement Commission (ISLAMIC REPUBLIC OF AFGHANISTAN, Procurement Law, 2008) worked together to anticipate, estimate, announce and implement Information technology projects in Afghanistan.

To address this, a number of good Information Technology Services companies were established locally, as well as, multinational and international companies participated in the ICB tenders too. All together, they have strived to accomplish the projects on time and within the budget, however, there have been a number of constraints and hurdles that proved to be the major factors affecting successful implementation of IT projects in Afghanistan. There are a number of studies undertaken in different countries to study e-Government adoption providing a strong theoretical understanding of the factors in this topic (Al-Shboul et al., 2014).

This study has mainly focused on the factors that affected successful implementation of IT project in Afghanistan, which for instance, was as low as 8% disbursement and 14% contract award ratio in ADB funded projects (Asian Development Bank, 2016). Yet, this does not represent the whole IT industry of the country, however, demonstrates to a very low rate of success of the projects overall. Security has always been one of the most talked factors in the accomplishment of projects, where most provinces faced ongoing insurgency and security concerns, hampering smooth project implementation (Asian Development Bank, 2016). This study includes practical examination of the projects' implementation process, observations and case studies to demonstrate to the major factors affecting successful implementation of IT projects in Afghanistan.

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1.1. Background

Afghanistan is a developing country and information technology is relatively new to the country as compared to other developing countries. IT in Afghanistan started from the very initial stage and went through a step-by-step process starting from the network infrastructure of each and every government body. In the early years of the republic government after the fall of Taliban, mostly tendered projects included active and passive network infrastructure in order to simply get connected. The advancement in the sector went on with a comparatively notable speed. The aim was to increase access to more affordable internet, crowd-in private investment in the sector, provide digital services, develop regionally integrated digital infrastructure https://mcit.gov.af/en/DigitalCASA and move towards a fully automated and digitalized government.

The award of the projects was based on a written policy, the National Procurement Law of Afghanistan aiming to organize procurement of goods, works and services, ensure transparency, control public expenditure and provide equal tendering opportunity to all eligible bidders (Translated Version of Procurement Law of Afghanistan, 2017). The eligibility criteria for the award of projects mostly rotated around best quality and lowest price, neglecting the technical capability, capacity and know-how of the bidders. Additionally, a number of technically unexpected hurdles existed in the area that led most of the IT projects to exceed deadlines or even fail eventually. This study has demonstrated to the vital factors that affected successful implementation of IT projects in Afghanistan, including case studies.

II. LITERATURE REVIEW

The terms Information Technology (IT) and Information and communication Technology (ICT) encompasses the range of technologies for gathering, storing, retrieving, processing, analyzing, and transmitting information that are essential to prospering in a globalized economy. (Wentz, Kramer and Starr, 2008). IT and ICT projects funded by both the Government of Afghanistan and the International Organizations. The National Procurement Authority possessed the sole right to review and approve any contracts exceeding 2 million USD, regardless of the funding agency (Asian Development Bank, 2016). This process was priorly done by the Special Procurement Commission (SPC) that was chaired by the then Minister of Finance (ISLAMIC REPUBLIC OF AFGHANISTAN, Procurement Law, 2008), which was relocated to the Presidential Palace as a secretariate and renamed as NPA with the necessary changes, policies and laws amendments. Considering that Afghanistan is a country with a relatively higher dependency upon the donors' aids, USD 100 Billion has been spent for development purposes by the donor countries (Hosaini and Singla, 2019). The project fund is initially divided into two main sections. On-Budget and Off-Budget. On-Budget is further divided into Development Budget and Operational Budget. Off-Budget, on the other hand, is any aid assistance or fund, that is spent outside the national budget of the country. In other words, projects funded and awarded by the international organizations directly are termed as Off-Budget (www.budgetmof.gov.af).

Considering all the polices and laws of the procurement, a number of factors were highlighted that had direct effect on the successful implementation of IT and ICT projects in the country.

2.1. Security

Security comes top of the list in all literary material relevant to Afghanistan. The country has been a war field for over 4 decades and according to Nasreen Ghufran, the wars were revolutionary in order to bring about a change in the country, that come with a dramatically high cost (Ghufran, 2001), hence making security as one of the most affecting external factors that led to budget overrun, delay and sometimes failure of IT and ICT projects in the country (Niazi and Painting, 2017). In this survey of Kabul Polytechnic University, security was ranked 4th in the top ten most significant factors affecting delay and cost overrun in projects.

Practically, it hasn't been possible for most of technically known Afghans to travel to provinces and rural areas in order to implement projects. Distance working has always been the alternative, by hiring local staff, however, the capacity of local staff has taken yet another step in the comptonization.

2.2. Estimating and Costing

According to the procurement law of Afghanistan drafted and approved in 2017, Entities are obliged to specify and calculate the total value of all procurements that shall be necessary during the fiscal year (Translated Version of Procurement Law of Afghanistan, 2017). This process is carried out by sending 3 Request for Quotations RFQs to 3 different local companies to inquire the estimated cost of the need items in order to add them to the fiscal budget. These companies can quote anything, without having the fear of being evaluated, since the process is only for the estimation of budget.

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In most of the IT and ICT projects, the initial budget taken through this process goes way too low or dramatically high, leading either to the re-announcement of the tender, or awarding the tender at an unfeasibly low cost, hence paving the way to the failure of the project. According to the procurement law of Afghanistan, the maximum percentage by which quantity may be increased or decreased is 15% of the total contract amount (‘Call center infrastructure RFQ’, 2019). This amount is practical only when the estimation of the project is accurate. Most of the contracts have gone way more than this percentage (AFMIS, eNID, AFMIS DR, Network Infrastructure of all districts of Kabul Province, Immigrants and returnees’ system, Online Passport Application System) and many other projects that have been discussed in the case studies, hence making cost estimation and budgeting one of the key factors that affect successful implementation of IT and ICT projects in Afghanistan.

2.3. Technical Know-How

To establish the eligibility of the Goods and Related Services, especially in IT and ICT projects, technical qualification and experience of the bidders and project owners is equally vital. In Afghanistan, the local contractors, especially for the supply of IT and ICT equipment are not adequately experienced. Similarly, due to the security constraints, international IT contractors do not participate in the tenders. On the other hand, the preparation of technical specifications and scope of work for the projects is as important as their implementation. According to Samiullah Paracha and authors, the major factor of failure of IT and ICT projects is failure to comply to the technical specifications of the project ('AN EMPIRICAL EXPLORATION OF PROJECTS FAILIURE IN AFGHANISTAN', 2016). The technical compliance is either compromised by misleading the bidder while preparing technical specifications and scope of work, or the low technical knowledge of the bidder during the implementation of the project.

2.4. EOS/OEL equipment due to delay in tendering process

The standard tendering process of the country has been time consuming. However, this time has proved to be essential for the tendering process in order to find qualifying bidder. The announcement of a tender, request for proposal, invitation to pre-qualify, or a notice of a restricted tender is published in the mass media, and, in the case of international tendering, published in the English language in media of wider international circulation (PROCUREMENT HANDBOOK, 2021). In the restricted tenders, the notice is issued 14 working days prior to the distribution of RFPs. The RFP then remains valid for a minimum period of 23 days for NCP (National Competitive Bidding) and go longer for ICB (International Competitive Bidding). The standard validity of the proposals can range from 60 days up to 120 days, most often extended due to delay in decision making.

During the long span of delay in the bidding process, most of the equipment proposed by the bidders are announced End of Sale (EOS) or End of Life (EOL) till the contract award takes place. The contract demands a specific model, which is no longer manufactured, yet creating a gap in compliance and paving way to request change orders in the project, which, for itself is proved to be a lengthy process. This EOS/EOL is, most often, the most visible factor of delay in the projects.

2.5. Corruption in Government

Bribery, embezzlement, abuse of power and nepotism have widely affected the administrative authorities of Afghanistan, hence leaving a demonstratable impact on the contracting business and tendering process of the country ('UNODC, Corruption in Afghanistan', 2012). On the other hand, the visible political corruption has compromised decision making and good governance. The most significant attribute that has affected contracts and have compromised the quality of material is corruption. With an RII value of 0.827, it has caused supply of low-quality material, poor project supervision and inexperienced technical teams from both the project donor and contractor sides (Hosaini and Singla, 2019). Had the e-Government and digitalization projects of the country succeeded, the corruption rate would have fallen down to a magnificent extent (Elam, 2022). Furthermore, it would have led the projects and governance to increased transparency, greater convenience, revenue growth and cost reduction, avoiding all the factors affecting the successful implementation of projects.

2.6. Corruption in Logistics

Importing goods to Afghanistan requires negotiation of parallel tax structures and the persistence of insecurity and conflict in Afghanistan, the threat posed by corruption in customs extends beyond just fiscal losses and high trade transaction costs ('World Bank, Custom Reforms in Afghanistan, Case Study'). This has led to the import of low quality and usually, second hand equipment packed as new. With the complex and paper based custom offices throughout the borders of the country, refurbished equipment is also a norm in the logistics of IT and ICT projects. Provision of samples could be an answer to this hurdle, however, there are no specific procedures for samples shipments. Sample shipments require the same set of documents as a normal shipment. The value of goods should still appear on the commercial invoice indicating "for customs clearance purpose only" on the invoice (www.customs.mof.gov.af).

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2.7. Inconsistency in Government Officials

Decision making and decision rejection or acceptance of goods is the contractual duty of government bodies and project donors, however, a perceived lack of attention to quality management, testing of goods and supervision of project is seen due to inconsistency in the government officials. According to the then President of Afghanistan, most of the government officials were people who had occupied their seats by force ('President Hamid Karzai'). The challenge was meant to be addressed by the Independent Administrative Reform and Civil Service Commission of Afghanistan in order to hire officials by merit, however, the political influence of politicians remained the same, bringing yet another factor of unsuccessful implementation of the projects into being.

2.8. Budget allocation

According to the National Budget guideline of Afghanistan, the budget is comprised of the following types.

- Core Budget (On-Budget)

Operating Budget
Development Budget
Aids and donations

- Funding Sources (Off-Budget)

International Organizations funded projects
Equipment and systems donations

The core budget of the country has been a long process consisting of a burden of paperwork and government processes, leading to delay in project. Major part of the contracting business was covered off budget, yet, the second largest portion of comprised of Development budget mainly used for the development projects in the country. Meanwhile, Operating Budget or Operational Budget is the considered another large part of the budget utilized for the government expenditures. A specific code is assigned to each project budget and a deadline is predicted based on the tendering timeline and implementation plan of the project. Based on the factors studied in this article, the budget projects usually didn't go along the implementation plan. Due to this fact, the budget was relocated to the budget plan of next year, causing a huge demurrage and delay in the logistics of the project, yet making it another factor affecting successful implementation.

2.9. Single Source Contracts

Most of the contracts from Afghanistan National Defense and Security Forces (ANDSF) that was incorporated of Afghan National Police (ANP), Afghan National Army (ANA) and Afghanistan National Security Department (ANDS), were awarded as single source contracts either due to the urgency of matters or the exclusive partnership of a specific company in specific equipment. The process lacked technical and cost competition and usually led to failure in implementing IT and ICT projects.

III. STATEMENT OF RESEARCH PROBLEMS

Information Technology and Information & Communication Technology have been challenging and new subjects to Afghanistan due to a 4 decades span of continuous war and insecurity in the country. Successful implementation of IT and ICT projects has always been a part of the news in the country. There have been many factors that have affected the successful implementation of technical projects. How IT and ICT started in Afghanistan and how the projects were awarded and implemented have been the statements that drew the attention of project owners, donors and contractors. In this study the factors that have affected the successful implementation of IT and ICT projects have been addressed and case studies have been presented to strengthen the discussions and conclusion.

IV. RESEARCH OBJECTIVES

1. To study the history and current status of IT and ICT projects in Afghanistan.
2. To provide a comprehensive analysis of the project tendering, award, implementation and supervision of IT and ICT projects.
3. To point out the major factors that have affected successful implementation of IT and ICT projects in Afghanistan.
4. To demonstrate to the technical capability of project owners, donors and national and international contractors in the area.
5. To address the challenges of End of Life/End of Sale equipment and process of change orders in the contracting process.
6. To study the tendering process and the role of digitalization and, on the other hand, corruption in the successful implementation of IT and ICT projects in the country.
7. To present case studies and practical stand points in order to study the factors that have affected successful implementation of IT and ICT projects in Afghanistan.
8. To propose possible solutions to resolve the factors, present discussion and conclusions.

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V. METHODOLOGY

The research mainly focuses on the study of factors and constraints that have directly or indirectly affected the successful implementation of Information Technology and Information & Communication Technology Services. The study is based on the cited articles and literary material. In addition, the National Procurement Policy, Procurement Law of Afghanistan, IT Policy of Afghanistan and other relevant public issues have been studied. Additionally, case studies have been presented from the implemented projects of the government bodies and international organizations to find out the factors that have direct or indirect effect on the successful implementation of IT and ICT projects in Afghanistan.

5.1 Article Selection

There has been too little literary material specifically in the subject of the research, hence, a broader range of literature and articles have been reviewed that included factors of same nature in implementation of projects. A wider range of research papers and articles were selected separately in project implementation and information technology in order to identify the research subjects being studied, methods being utilized and publication patterns in the area. Due to the explanatory nature of the research, the publications of researchers in the subject were studied including Christopher Wilson, Hanadi Salameh, UNODC Corruption Afghanistan, ADB Enhanced Project Delivery Approach, Custom Reforms in Afghanistan, Joshua Munywoki Kalola and Stanley Kavale, Third World Conference on information Technology and others in-text cited.

5.2 Published Government Documents

To address the research objectives, a number of public documents were selected and reviewed including Procurement Policy, Procurement Law of Afghanistan, National Competitive Bidding documents, International Competitive Bidding documents, ICT Policy of Afghanistan, Information and Communication Technology Policy of Ministry of Communication and Information Technology and ICT sector strategy of Afghanistan.

5.3 Case Studies

A number of implemented projects were taken under research in IT and ICT business and contracts awarded in the last 20 years of the republic government. Different factors were studied that had direct and indirect effect on the successful implementation of the projects in the sector. The constraints were studied from the project donor and contractor perspectives depicting different hurdles, constraints and factors that had direct or indirect effect in the delay, quality control, quality assurance, budgeting and timeframe of the projects' implementation.

5.4 Procedures

Literature and public policies and procedures have been studied independently and factors have been identified that have compromised the timeline, quality and success of projects in Information and Communication Technology Services. The procedure was followed step by step from the bidding process through the award and implementation of the projects until the handover and signing off. Each and every factor has been identified and demonstrated separately and discussions have been presented to support the objectives. Similarly, the subject has been concluded with possible way outs and solutions and scope for future work has been identified.

VI. CASE STUDIES

To study the factors that have affected successful implementation of IT and ICT projects in Afghanistan, a number of implemented projects were studies from the very beginning of the bidding process through the contract and signing off of the projects. These factors have either affected the duration of the projects, or have compromised quality and standards. The projects and the data used in this study is unclassified and available for public use. On the other hand, third party authorization letters have been taken.

6.1 AFMIS (Afghanistan Financial Management Information System)

The Afghanistan Financial Management Information System is considered a critical and vital system of the Republic Government of Afghanistan, funded by World Bank. The project was aimed for ensuring accountability for processing and reporting the Government's operating budget, which was largely financed by international contributions (www.budgetmof.gov.af). The RFP for the project was announced in January 2010 and was awarded to a local company in late March, 2010 ('AFMIS-PRF-Bidding Document', 2010)However, the Notice to Proceed (NTP) of the project took longer than expected and the items that were listed in RFP and contract went EOL/OES. Thus, a number of change orders were requested by the contractor, which, for the bureaucratic and political reasons in the country, took a very long time for approval. This caused a delay of almost 4 years in the project and the project was taken over by the Ministry of Finance in late 2014.

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According to the contract and RFP, the project was supposed to be supplied, installed, commissioned and signed off within 24 weeks from the signing date. The change orders as well as the low technical know-how of the owner's side were the major factors that led to a delay of 4 years in the project. In addition to this, this was the very first experience of such an enormous system in the country, which can also be considered as a factor causing gap of communication, acceptance of the equipment and launch of the project.

6.1 STO, MTO, LTO Network Infrastructure (One Stop Shop)

The project was given to 3 companies for the initial pricing and specifications. InteracTech Solutions (www.interactech.co) was one of the companies involved in the process. The project was intended to be completed in a timeframe of 6 weeks. After the award of the project, the equipment went EOS/EOL, as well as a number of items such as Queue Management System, which is heavy in weight and huge in volume was supposed to be imported either from China or India, which again, took a longer time. The project was completed in one year with pending activities that were completed later on ('STO MTO LTO IT REQUIRED ITEMS', 2017). The factor for the delay of this project was the award of project to a contractor with little technical know-how of the IT and ICT sectors.

6.3 Online System for Documents Verification of Embassies of Afghanistan

An online system was developed for the verification of documents of Afghan nationals living in other countries and require verification of documents from the respective embassies of Afghanistan in those countries (ONLINE TAZKIRA AUTOMATION (FOREIGN OFFICES) EMBASSIES, CONSULATES, DIPLOMATIC MISSIONS Tazkira Verification Name Correction Age Correction New Tazkira Application, 2017). The system was developed according to the information of the government and the contractor and data was analyzed to address proper authorizations and authentications. In this process, users were created for the government officials in embassies and NSIA to perform online verifications (www.oiigroup.com/tazkira).

The system was intended to bring transparency in the documents verification, since this process included tremendous corruption and a huge number of middlemen involved. Due to the complexity of work flow and significant corruption in the process, the system was closed soon after the launch and the same paperwork continued as it was. Despite some efforts for improving e-governance in Afghanistan in recent years, the US Embassy report noted in 2011 that 'most, if not all, Afghan documents are ripe for fraud; they remain handwritten, usually unsealed and quite commonly do not contain true information ('US Embassy', 2011).This problem was supposed to be solved by this system (ONLINE TAZKIRA AUTOMATION (FOREIGN OFFICES) EMBASSIES, CONSULATES, DIPLOMATIC MISSIONS Tazkira Verification Name Correction Age Correction New Tazkira Application, 2017). The factors that were found to affect the successful implementation of this project was single source agreement and inconsistency in government officials.

VII. DISCUSSION AND CONCLUSION

The 9 major factors that have affected successful implementation of IT and ICT projects in Afghanistan have been discussed in the study and necessary literature has been cited to support the arguments. In addition, case studies have been presented to demonstrate to the effect of specific factors in the a more practical way in the projects. Out of the 9 factors discussed in this study, it was noticed that 7 factors have affected the overall procurement of the country. The research indicates that these factors have compromised the timeframe, quality and technicality of the projects in IT and ICT sectors, which has led to the failure or delay of the projects. In conclusion, the study found out that these factors could have been addressed properly in order to avoid the constraint. Recommendations have been made to address the factors and come up with possible way outs.

VIII. RECOMMENDATIONS

1. Coordination between every government body and Independent Administrative Reform and Civil Service Commission of Afghanistan in order to hire technically qualified employees and officials.
2. To bring a process of partnership and coordinate between the government and Original Equipment Manufacturers (OEMs) for budgetary and technical specifications issues.
3. To enhance and improve digitalization in the country in order to decrease corruption in the country.
4. To coordinate with OEMs for the expected date of EOL/EOS equipment and approve equivalent models without the need for change order and a long span of paperwork.
5. To assess IT and ICT projects differently from the logistics and construction projects, since a number of technical aspects are involved and need specific knowledge in the field.
6. To give more opportunities to open tenders as compared to single source agreements in order to find best quality and lowest cost solution.

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IX. SCOPE FOR FUTURE WORK

This research was explanatory in nature and didn't include the budgetary digits, number of projects completed, number of projects pending and the exact statistics of the delay in IT and ICT projects.

Future researchers may address these aspects by studying the literature of Ministry of Finance, Asian Development Bank, World Bank, UN Agencies and NATO in Afghanistan.

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International Journal of Advanced Research in Computer and Communication Engineering

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