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CONTENT

SME Policy 2019: Trend Analysis on Access to Finance

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Abstract

Small and Medium Enterprises (SMEs) have a significant role in generating growth & employment and reducing poverty in Bangladesh. This policy evaluation is done to assess the present trend of SMEs access to finance, to see the implementation status of time bound action plan mentioned in SME Policy, 2019 and to suggests policy options & recommendations for SMEs access to finance on the basis of primary and secondary data. The study has found that allocation of finance for SMEs is increasing constantly but still there are some barriers; collateral, documents required, higher rate of interest, lack of experience in business are the most important ones. In case of implementing the time bound activities it is found that some of the activities are done within the given time frame but some are not done even the time is over. In Bangladesh most of the SMEs are facing financial constrain and could not go for the full capacity utilization due to the financing problem. So, the government should corrective meaning of the financial market as well as implement the time-bound action plan to ensure the accessibility of SMEs to finance on time as & when required

Keywords: SME, SMEF, Finance, Trend

Chapter 1: Introduction

1.1 Background

Small and medium enterprises (SMEs) are the businesses where number of employees and amount of capital vary from country to country. In Bangladesh it varies from manufacturing industries to service sector industries. Bangladesh achieved robust economic growth between 6-8% during 2015 -2019 and it has been showing sustainable recovery from the impact of the global coronavirus pandemic. The Gross Domestic Product (GDP) growth experienced a sharp fall at

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3.45 percent in FY 2019-20 from 7.88 percent growth of pre-pandemic year. However, GDP growth rebounded and stood at 6.94 percent in FY 2020-21 and 7.5 percent in FY 2021-2022 (Bangladesh Economic Review 2022). In Bangladesh, SMEs are considered as engines of economic growth that constitutes over 90 percent of business enterprises. According to Bangladesh Economic Research report 2018, SMEs contribute 23% of the industrial GDP and 80% of the total employment in the private sector. It needs to mention that Bangladesh is turning from agrarian country to industrial country. Contribution of industry to our GDP has been increased to 37.07% in FY 2021-2022 from 19.13% in FY 1985-1986. On the other hand, contribution of agricultural sector to GDP has been decreased to 11.50% in FY 2021-2022 from 31.15% in FY 1985-1986. Like in most of the developing countries, SMEs accounts almost 90% of the businesses in Bangladesh. SMEs are considered as a vital instrument for new employment generation, poverty alleviation and rapid industrialization (Ahmed, 2009). All countries are trying their best to develop new entrepreneurs, promote SMEs and facilitating their graduation into large industries for rapid industrialization (Abdin, 2015). Among many other problems faced by SMEs of Bangladesh, major problem is finance (Taslim, 2014). If the financing problems had been solved, the SMEs could have contributed more to the economy. Venture capital, bank syndication scheme, Human Resource Development in financial institutions & in government offices, training and development etc. as potential tools of eliminating the constrains of SMEs financing (Chowdhury, Azam, and Islam, 2013). SMEs failed to fulfill the expectation inour country due to the lack of access to institutional finance, lack of consumer-based market for SMEs products and non-availability of formal SMEs entrepreneur development initiatives. **There are 11 strategic goals in SME Policy, 2019 where goal 2 is "Increasing scope of access to finance of SME sector"**. To achieve Sustainable Development Goals (SDGs) 2030, Vision 2041 and Delta Plan we need to ensure smooth SMEs financing. Sometime bound action plans are taken in SME Policy 2019 to ensure SME finance to be achieved by June 2024. This study has been conducted to see the present status of SMEs financing in Bangladesh with specific objective to assess the implementation status of this time bound action plan mentioned in SME Policy, 2019.

1.2 Problem statement

SMEs are playing a key role in business by creating new entrepreneurs, as well in employment generation and poverty reduction. Country like Bangladesh has an environment for SEMs due to lack of big capital. Though SMEs are contributing in GDP and employment generation, SMEs are facing a number of constraints as well as problems. Mostly, owners are having difficulties with limited access to credit. SMEs are not having business plan and market forecasting assessment so that they can run their business in benefit modal condition. Entrepreneurship skill and knowledge or training are also less of SMEs owners to run their business in a competitive market. Therefore, it is found that inadequate capacity development institutions in Bangladesh for entrepreneurship development and to facilitate business strategy plan are the most barriers for SMEs. Financial institutions are also not adequate which are linked with SMEs development. Thus, this sector cannot run in full swing or in full capacity due to lack of finance and financial intervention. Moreover, technological support, domestic material support, cooperation from government institutions are the main concerned for SEMs in Bangladesh, where government policy intervention and support are required.

1.3 Objectives

The objective of this policy evaluation is to
   a) To assess the present trend of SME financing in Bangladesh;
   b) To assess the implementation status of time bound action plan mentioned in SME Policy 2019 to ensure SMEs access to finance; and
   c) To suggests policy options & recommendations for SMEs access to finance.

1.4 Limitations

This policy evaluation paper has some shortfalls. Policy evaluation paper writing is an art depending on available data collection. Despite the shortage of time, huge scheduled classes are chalked out to infuse information-based knowledge among the participants of 102nd SSC for making them pro-active, honest, efficient and dynamic officers. It was not possible to consult many other research works in this

sector due to shortage of time. But proper attention has been given with utmost sincerity to prepare this policy evaluation paper. Information collected from both primary and secondary sources is not included in detail.

1.5 Rationale

Employment and living a decent life are the right of every citizen of every country. But government can't create jobs for everyone. So, entrepreneurs are being created everywhere in the world. In Bangladesh lot of SMEs are coming out regularly but all of them can't sustain or even the sustained ones fail to do better or to turn into a large industry. One of main causes behind this is lack of proper financial support. Therefore, proper policy formulation and its implementation is of crucial need for the development of this sector. Though many studies have been made in this regard but no study has yet been done to assess the implementation status of time bound action plan for SME financing mentioned in SME Policy, 2019. I believe this policy evaluation paper will be helpful for the policy makers to take appropriate measures to ensure adequate finance for SMEs in Bangladesh as per SME Policy, 2019 so that this sector can play its role to achieve vision 2041.

Chapter 2: Methodology

This study is descriptive in nature based on both primary and secondary data. Primary data was collected by visiting SME Foundation, SME & special programmes department of Bangladesh Bank, some SME entrepreneurs & Bankers (using structured questionnaire) and secondary data was collected from journals, websites, Bangladesh Economic Review 2022, Bangladesh Bank, National Industrial Policy, 2016 and SME Policy, 2019.

Chapter 3: Review of literature

To review the related literature is a necessary part of research work. It gives researchers well-informed ideas about the concerned area of research. So, first scholars' opinions findings related to the topic are discussed.

SMEs are playing a major role for the economic growth of Bangladesh. SMEs accelerate the entrepreneurial skills which help the entrepreneurs to adjust the business with changing market conditions by diversifying economic activities (Helal uz Zaman and Md. Jahirul Islam, 2011). SMEs of Bangladesh are facing many problems, along with other problems, financing is the major problem (Taslim, 2014). If financing problems had been solved, the SMEs could have contributed more to the economy by fulfilling the expectation from this sector. Therefore, appropriate policies and government initiatives should be taken to face the challenges of SMEs for further development of this sector (Qamruzzaman, 2015). The success rate of SME financing is very high as well as it contributes to the GDP in Bangladesh but disbursement of SME loan is lower than industrials loan (Bosri, 2016). Indeed, the implementation of appropriate policies and strategies is a prerequisite to harness sustainable competitiveness of SMEs around the country (Alam, and Ullah, 2006). Therefore, the SME sector should be given priority in getting financial support for the development & expansion of the sector.

3.1 Definition SMEs

3.1.1 Definition of SME around the Globe

There is no Universal definition of SME. Every country has their own definition on the basis of investment, number of workers employed. It also varies from service sector to manufacturing sector as well as on the basis of technologies and technical complexities of production, degrees of skills demanded from workers and managers, end use of products and so on, which varies from country to country. Germany defines SME as an enterprise with a limit of 500 employees, while in Belgium it is only 100 (Mohammad A. Arafat and Ezaz Ahmed, 2013). As per European Union (EU), SMEs are enterprises which have approximately 250 employees and an annual turnover not exceeding 50 million Euros. Further there is a distinction of small enterprises with fewer than 50 employees and a turnover of fewer than 10 million Euros and micro-enterprises with fewer than 10 employees and a turnover of 2 million Euros (European Commission, 2012). According to sections 382 and 465 of the Companies Act 2006 of UK, a small

company has a turnover of not more than 5.6 million pounds, a balance sheet total of not more than 2.8 million pounds and not more than 50 employees. A medium-sized company has a turnover of not more than 22.8 million pounds, a balance sheet total of not more than 11.4 million pounds and not more than 250 employees. United States Small Business Administration (USSBA) in 2012 defined SME as the most common size standards are: 500 employees for most manufacturing and mining industries, 100 employees for wholesale trade industries, $6 million of annual receipts for most retail and service industries, $28.5 million of annual receipts for most general and heavy construction industries, $12 million of receipts for all special trade contractors and $0.75 million of receipts for most agricultural industries.

3.1.2 Definition of SMEs in Bangladesh

According to National Industrial Policy, 2016, in manufacturing sector small industries are those where amount of investment is 7.5 to 150 million BDT & number of workers are 31-120 where in-service sector investment is BDT 1 to 10 million and number of workers are 16 to 50. On the other hand, medium enterprises are those where in manufacturing sector investment is BDT 150-500 million & number of workers are 121-300 and in-service sector investment is 20-300 million BDT & number of workers are 50-120.

According to Bangladesh Bank SME enterprise refers to the establishment/ firm/ business which is not a public limited company and complies the following criteria:

Table 1: Definition of SME by Bangladesh Bank, 2016

Enterprise	Measurement	Business	Service	Manufacturing
Small	On the basis of fixed asset (Tk.)	5 lakh - 1 crore	5 lakh - 1 crore	50 lakh- 10 crore
	On the basis of manpower	6 – 10	10-49	25-99
Medium	On the basis of fixed asset (Tk.)	1 crore - 15 crore	1 crore - 15 crore	10 crore-30 crore
	On the basis of manpower	11-50	50-100	100-250

3.2 SME Policy 2019: Vision, Mission, Target/Goal, Objectives

Vision of SME Policy, 2019 is "**Creating a vibrant SME sector in Bangladesh**" and mission is "**Strengthening SME sector by enhancing efficiency, improving business environment, providing easy access to finance, ensuring better marketing facilities, upgrading technology and innovative capabilities and creating employment opportunities**". Here target/goal is fixed as "**contribution of SME sector in the GDP to be increased from 25 % to 32% in order to implement the development projections**".

Among six objectives of the SME Policy, 2019 number two objective is related to finance which is, "**Improve SME-friendly environment by increasing the scope of institutional funding in SME sector, adoption of ICT based technology, development of productivity strategy, marketing of products, linking SMEs with large industries and strengthening of legal and institutional structures**".

3.3 Strategies of SME Policy, 2019 related to finance

Total 11 strategies and time bound action plan have been set for the development and strengthening of the country's SME sector in line with the Vision, Mission, Goals and Objectives described in the SME Policy, 2019 in which no. 2 which is related finance is, "**Increasing scope of the SME sector to receive institutional funding facility**". In this strategy it is said that "**A sustainable SME financing system will be established to meet up credit needs in SME sector**".

3. 3.1 Tools to implement strategies of SME Policy, 2019 to ensure financial access of SMEs

There are six tools in SME Policy, 2019 to ensure financial support for SMEs which are: 1) Create a sustainable and effective institutional system for enhancing access to finance for SMEs. 2) Increase amount of credit flow to the SME sector; 3) Support access to finance in SME related innovations and introduce `SME Bank' in the country; 4) Strengthen existing refinancing scheme to provide SME loan at a reduced interest rate to the SMEs; 5) Ensure easy access to credit and low interest rate of SME loan by strengthening Credit Wholesaling (CWS) scheme 6) Launch SME Credit Guarantee Fund.

3.3.2 Role of Government related to finance according to SME Policy, 2019

1) In order to increase the scope of institutional funding facility in the SME sector, the government will take necessary steps to increase loans, credit risk reduction and credit transaction through Bangladesh Bank, commercial banks and 2) SME Development Fund will be allocated in favour of major and important organizations for the implementation of their action plans included in the SME Policy, 2019.

Reviewing literature, it is found that less work is done in Bangladesh on SMEs' access to finance. One the other hand no work is found on evaluation of implementation status of time bound action plan mentioned in SME Policy, 2019 to be implemented by Jun, 2024 to ensure SMEs access to finance. So, this policy evaluation is carried out.

4. Data analysis and Discussion

4.1.1 Financial programs of Bangladesh Bank for SMEs

Table 2: Disbursement of credit by Banks and NBIs to SMEs

Period	Target	Actual Disbursement				Women Ent.	Achievement (%)
		Trading	**Manufacturing**	**Service**	**Total**		
2010	38858.12	35040.53	15147.72	3355.68	53543.93	1804.98	138
2011	56940.13	34382.64	15805.95	3530.85	53719.44	2048.45	95
2012	59012.78	44225.19	21897.33	3630.90	69753.42	2224.01	118
2013	74186.87	56703.72	24016.64	4602.89	85323.25	3351.17	115
2014	89030.95	62767.18	30246.20	7896.77	100910.15	3938.75	113
2015	104586.49	73551.78	30462.02	11856.68	115870.48	4226.99	112
2016	113503.43	90547.57	35168.63	16219.19	141935.39	5345.66	125
2017	133853.59	96934.79	42334.87	20507.66	161777.32	4772.99	121
2018	161031.89	66936.21	55739.61	36834.25	159510.07	5517.09	99.05
2019	176902.00	72522.37	58715.31	36723.99	167970.67	6108.99	94.95
2020	229153.21	83455.61	80843.34	42504.68	206803.63	8244.46	90.25
2021*	252760.64	87934.45	83007.29	44844.56	215786.30	8801.54	85.37

Source: Bangladesh Bank

Data collected from Bangladesh Bank and Bangladesh Economic Review 2022 (Table 2) above indicate that Bangladesh Bank has been continuing its effort in financing & refinancing scheme till today for Banks and Non-Bank Financial Institutions (NBFIs) against their financing to SMEs. But still it is not sufficient and some obstacles are there to get finance for startup business.

4.1.2 Refinance schemes of Bangladesh Bank

Data collected from Bangladesh Bank showed that in addition to regular financing to SME enterprises, Banks and NBFIs are also making short to long term financing to SMEs to expand business and employment generation through refinance and pre-finance schemes of Bangladesh Bank. Currently with the financial help of Japan International Cooperation Agency (JAICA), EU, other Developing Partners and by own fund it is running 8 programs & projects for SMEs. A total amount of Tk.15,408.17 crore has been disbursed up to February 2022 against 1,96,817 enterprises presented in Table-3.

Table 3: Summary Information on SME Refinance Schemes
(as on Feb./2022)

SL. No	Name of the Fund	Amount of Refinance (Tk. in Crore)	Financed Enterprises
1	Refinance Scheme for Agro-based Industries in Rural Areas	2400.99	3531
2	Small Ent. Refinance Scheme: (i+ii)	5205.52	44027
	i) Small enterprise Refinance Scheme	4842.67	41589
	iii) Small enterprise Refinance Scheme-Extension 2014	362.85	2438
3	New Ent. Refinance Fund for CMSEs	109.72	1647
4	Islamic Shariah-based Refinance Fund	610.53	903
5	JICA FSPDSME	1185.19	1888
6	JICA UBSP	84.87	6

7	COVID-19 Refinance Scheme	5535.49	143789
8	SREUP	126.26	14
9	COVID-19 related CECRFB Project	149.60	1012
	Grand Total	**15408.17**	**196817**

Source: Bangladesh Bank

4.1.3 Trend of SME finance in Bangladesh

Table-4: Trend of SME loan (amount in BDT in crore)

CMSME Loan Outstanding

Year	Amount
2017	202,411
2018	188,245
2019	219,294
2020	237,653
2021	252,082
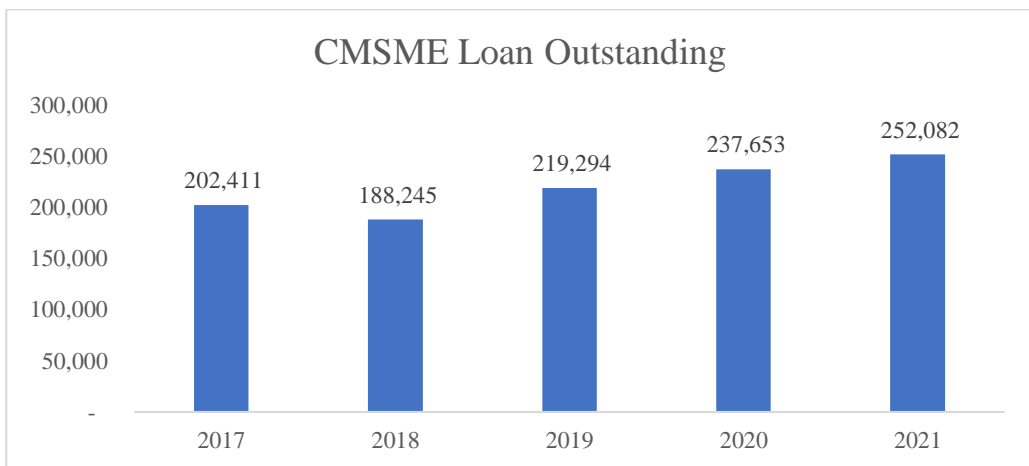
From the data illustrated above (Table 4), we can see that apart from the year 2018, the outstanding of CMSME loans is constantly rising over the years and this trend has not been affected even by the Covid-19 pandemic due to the prudent steps taken by the Government of Bangladesh, Bangladesh Bank, and organizations such as SME Foundation and Joyeeta Foundation.

4.2 Interview results regarding trends of SMEs access to finance:

After data collection by interviewing some entrepreneurs and bankers, it is found that allotment and disbursing of SME credit is increasing day by day though entrepreneurs are facing some problems as:

- ✓ Lack of collateral
- ✓ High rate of interest
- ✓ Lack of business plan

- ✓ Lack of business experience
- ✓ Lack of documents
- ✓ Lack of guarantors
- ✓ New business
- ✓ Recommendation from SME Foundation (SMEF)
- ✓ Statement of income and expenditure of the business etc.

4.3 Implementation status of finance related to time-bound action plan of SME Policy 2019

In SME policy 2019 various time -bound action plan was taken. The implantation status of theses activities as of August 22, 2022 are shown in table 5 Source: SMEF)

Table 5: Implementation status of time bound activities related to SMEs access to finance

Sl	Strategic Tools	Section	Activities	Main Implementing Agencies	Implementation Period	Associate Implementing Agencies	Implementation status as of June 2022
1.	Develop a sustainable and effective institutional system	4.2.2.1	• Select a bank (public or private) for each district to work as the SME Lead Bank for coordinating the activities with local scheduled banks in respect of SME loan scheme.	Bangladesh Bank	July 2019-June 2021	Financial Institutions Division, Commercial Banks, BSCIC, Ministry of Industries, SMEF and NASCIB	SME Lead Bank for each district has been selected by Bangladesh Bank but now it's non-functioning.
			• Establish and maintain SME department / unit / wing in each branch of commercial banks.	Bangladesh Bank	July 2019-June 2024	Financial Institution Division, Commercial Banks and SMEF	SME department/unit/wing in each branch of commercial banks has been established and maintained but need to be strong monitored.

Sl	Strategic Tools	Section	Activities	Main Implementing Agencies	Implementation Period	Associate Implementing Agencies	Implementation status as of June 2022
2.	Increase flow of credit to SME sector	4.2.2.2	• Determine disbursement target of SME loan to each unit by the Bangladesh Bank. • Monitoring activities of all SME units at specific intervals and motivate for SME funding. • Give highest priority to SME financing by the Government Commercial banks.	Bangladesh Bank	July 2019-June 2021	Financial Institutions Division, Commercial Banks and SMEF	Disbursement target of SME loan to each unit has been determined but not monitored regularly.
3.	Introduce innovative SME Financing ideas	4.2.2.3	• Launch Credit Guarantee Scheme (CGS) on experimental basis for SME entrepreneurs by Bangladesh Bank and SME Foundation.	Bangladesh Bank	July 2019-June 2021	Finance Division, BSCIC, SMEF and Ministry of Industries	Not Implemented
			• Simplify procedure to access of funding from Entrepreneurship Support Fund (ESF) for SMEs.	Bangladesh Bank and ICB	July 2019-June 2024	Finance Division, BSCIC, SMEF and Ministry of Industries	Yet to implement
			• With the support of SMEF and Bangladesh Bank; several factoring financing mechanisms to be introduced on experimental basis.	Bangladesh Bank, BSCIC and SMEF	July 2019-June 2021	Finance Division and Ministry of Industries	SMEF has taken step to conduct a study on Factoring Financing but yet to start.
			• Appoint Venture Capital Fund Manager under the Bangladesh Securities and Exchange Commission (Alternative Investment) Act 2015, for the management of start-up SME financing.	Bangladesh Bank	July 2019-June 2021	Finance Division, BSCIC, Ministry of Industries and Bangladesh Securities & Exchange Commission	Not Implemented

Sl	Strategic Tools	Section	Activities	Main Implementing Agencies	Implementation Period	Associate Implementing Agencies	Implementation status as of June 2022
4.	Strengthen refinance scheme	4.2.2.4	• With the effective involvement of the existing donors of the refinance scheme, the Bangladesh Bank and the Ministry of Industries will work to increase the foreign fund for the refinance scheme and find new donors for this purpose.	Bangladesh Bank, Finance Division and Ministry of Industries	July 2019- June 2022	BSCIC and SMEF	Bangladesh Bank has been working to increase the foreign fund for the refinance scheme.
			• Government's Budget allocations on refinancing scheme to meet increasing credit demand of SME sector.	Bangladesh Bank Finance Division	July 2019- June 2024	SMEF	Refinancing scheme to meet increasing credit demand of SME sector has been running by Bangladesh but with no involvement of SME Foundation.
5.	Strengthen Credit Wholesaling Programs	4.2.2.5	• SMEF will prepare a guideline of Credit Wholesaling Scheme (CWS) and share it with Bangladesh Bank with the approval of the Ministry of Industries. • Implement an integrated CWS program	SMEF	July 2019- June 2021	Bangladesh Bank, Finance Division and Ministry of Industries	A Credit Wholesaling Scheme (CWS) guideline has been prepared by SME Foundation.
			• Budget allocation for strengthening SMEF's credit-wholesale programs to meet increasing demands of SME sector.	Finance Division	July 2019- June 2021	Bangladesh Bank and Ministry of Industries	A total of 5000.00 crore taka budget allocation needed for strengthening SMEF's credit-wholesale programs.
			• SMEF will create a list of beneficiaries under the CWS and will share it with the Bangladesh Bank with the approval of Ministry of Industries.	SMEF	July 2019- June 2021	Bangladesh Bank, Finance Division and Ministry of Industries	SMEF created the list of beneficiaries under the CWS programme and shared it.

Sl	Strategic Tools	Section	Activities	Main Implementing Agencies	Implementation Period	Associate Implementing Agencies	Implementation status as of June 2022
6.	Organize various non-financial programs to create awareness among SME funding	4.2.2.6	• Create awareness among the SMEs by regularly organizing training and matchmaking program between bankers and entrepreneurs in various departments / districts/ towns.	SMEF and Bangladesh Bank	July 2019-June 2024	Financial Institutions Division, Commercial Banks, Ministry of Industry	Workshops, seminar and training on financial literacy specially designed for SME bankers and bankers-entrepreneurs matchmaking events have been conducting regularly.
7.	Provide collateral free single digit interest rate loans for potential entrepreneurs of the clusters	4 5.2.3	• Provide collateral free single digit interest rate loans for potential entrepreneurs SMEs in Clusters	SMEF	July 2019-June 2024	Bangladesh Bank	A total of 124.00 crore taka collateral free & single digit interest rate loan has been distributed by SMEF among 2,200 SMEs located at 32 SME clusters through Banks and NBFIs.
			• Expand cluster financing through increasing SME financing	Finance Division and Bangladesh Bank	July 2019-June 2021	SMEF	There has been created a demand of 5,000.00 crore taka loan at 177 SME clusters but SMEF is not able to fulfill it due to fund shortage.
8.	Increase credit flow for women entrepreneurs and arrange specialized loans	4. 4.8.2.2	• Simplify conventional lending policies for SME women entrepreneurs.	Bangladesh Bank	July 2019-June 2021	SMEF	Partially implemented
			• Expand the amount and limits of collateral free loans on doable conditions for SME women entrepreneurs.				
			• Organize loan related matchmaking training and training for Bankers program to raise their	SMEF and Bangladesh Bank	July 2019-June 2024	Commercial Banks, Women Association,	Matchmaking training and training for Bankers

Sl	Strategic Tools	Section	Activities	Main Implementing Agencies	Implementation Period	Associate Implementing Agencies	Implementation status as of June 2022
			awareness about increased demand and supply of finance for SME women entrepreneurs.			and the Chambers	programs has been organized regularly.
			• Expand the scope of specialized loan program offered by SMEF for female entrepreneurs.	SMEF	July 2019-June 2021	Finance Division and Bangladesh Bank	SMEF has been offering the programs and needs more fund to expand the scope of these.

4.4 Analysis of the implementation of time bound action plan mentioned in SME Policy, 2019

After analysing the information shown in table Table-5 to suggests policy options & recommendations for SMEs access to finance, it is seen that some of the activities are done within the time frame, some are continuing and some are not done though time is over.

4.4.1 Activities which are done

1) Establishment of a section in each bank for SME loan.
2) Selection of a lead bank in each district to coordinate SME loan but not functioning now.
3) Determine disbursement target of SME loan to each unit but not monitored properly.
4) Preparing Guideline of Credit Wholesaling Scheme (CWS) by SMEF.
5) Budget allocation for strengthening SMEF's CWS programs to meet increasing demands of SME sector and SMEF projected that 5000.00 crore taka budget allocation needed for the program.
6) Providing collateral free single digit interest rate loans for potential entrepreneurs SMEs in Clusters are implementing. In the meantime, 124.00 crore taka collateral free & single digit interest rate loan has been distributed by SMEF.

7) Create awareness among the SMEs by regularly organizing training and matchmaking program between bankers and entrepreneurs in various departments / districts/ towns are going on regularly.

4.4.2 Activities not done

1) Launching Credit Guarantee Scheme on experimental basis for SME entrepreneurs by Bangladesh Bank & SMEF and appoint Venture Capital Fund Manager under the Bangladesh Securities and Exchange Commission (Alternative Investment) Act 2015, for the management of start-up SME financing.
2) Several factoring financing mechanisms.
3) Increasing foreign fund for the refinance scheme and finding new donors.
4) Expanding cluster financing through increasing SME financing and scope of specialized loan program offered by SMEF for female entrepreneurs, can't be implemented due to lack of finance.

4.5 Policy response to support SMEs affected by COVID-19 pandemic

Bangladesh Bank has initiated various steps to provide financial support to SMEs through Banks & NBFIs during Covid-19 pandemic of which important ones include (Bangladesh Bank, 2022):

- A stimulus package worth Tk. 20,000 crore has been announced to meet-up the working capital need of COVID-19 affected SMEs at 9% interest of which entrepreneurs will pay 4% and government 5% interest to Banks and FIs disbursing the credit.
- Disbursement will be made at least 8% to women enterprise under the stimulus package.
- Initiated a revolving Refinance Fund worth Tk. 10,000 crore to support the liquidity requirement of Banks and FIs.
- Bangladesh Bank has increased the fund sizes of three existing refinance schemes with reduced interest rate to 3% at Banks/FIs level and 7% at borrower level.

- The repayment of working capital loans on EMI basis has been allowed with interest rate not more than 9%.
- Net outstanding based target for SME loans of Banks & FIs has been introduced to achieve at least 25% as SME out of their net outstanding amount of all loans & advances by 2024 while maintaining a minimum 1 % enhancement in each year.
- To encourage women entrepreneurs, Banks/ FIs and entrepreneurs will get 2 % incentives (1%+ 1% incentive respectively) on the principle amount after fully recovered the loan within expiry date. This facility will be applicable for the loans disbursed within 1 July 2021- 31 December 2024.
- Banks and FIs are instructed to disburse 50 % of the total SME loan to CMSE sector by 2024.
- Banks and FIs are instructed to provide 3 to 6 months grace period for 1 to 5-year medium to long term loan based on banker-customer relationship.
- New Entrepreneurs Refinance Scheme allows collateral security free financing more than Tk. 1.00 million on case to case basis and collateral security supported financing up to Tk. 2.5 million.
- Instructions were given to Banks & FIs to consider sanctioning loan up to Tk. 2.5 million to women entrepreneurs without collateral security.
- Established a credit guarantee scheme unit in 2019 to provide credit guarantee to SME.

4.6 Initiatives of SMEF to support SME financing (SMEF, 22 August, 2022)

SME foundation has initiated various programs for training, capacity & cluster development programs of SMEs of which related to finance includes:
- SME Foundation has disbursed credit worth Tk. 3.0 billion among 3,106 entrepreneurs at 4.0 percent interest rate under the government' stimulus package during the pandemic.
- SMEF is operating Credit Wholesaling Program through banks and NBFIs and distributed Tk. 1.2 billion collateral free loan at 9% interest rate among 2,186 SMEs (524 women) at 31 SME clusters and cliental group.

In order to accelerate the economic recovery of our country as well as to improve living standards of the marginalized people during Covid-19 pandemic SMEF has disbursed 300 crore loan in favor of SMEs under the 2nd stimulus package announced by the Honorable Prime Minister. Besides, Guidelines have been prepared and sent to all District Chambers, Women Entrepreneur Organizations and concerned trade bodies / associations to make it easier for SMEs to get loans from the Incentive Package of Tk 40,000 crore announced by the Honorable Prime Minister. There has been created a demand of 5,000.00 crore taka loan at SME clusters but SME Foundation is not able to fulfill it due to fund shortage.

Chapter 5: Conclusion and Findings

SMEs in Bangladesh like other developing countries of the world play a very important role in employment generation, poverty alleviation and thereby in economic development of the country. In every National Industrial Policy (National Industrial Policy, 1973,1986,1991, 1999,2005,2010,2016 & 2022) of Bangladesh emphasis is given to the development of SMEs. In addition, in SME Policy, 2019 sometime bound action plans are taken to ensure the financial support to SMEs. Most of the activities are still to done but some decisions taken earls are not implemented. The financial support to SMEs is gradually increasing in every year but still there is a big gap between the demand & supply side. So, SMES are functioning in full capacity. According to the World Bank, the SME sector in Bangladesh has a financing gap of **$2.8 billion.** In Bangladesh, the biggest barriers to SME growth are the cost of finance and access to finance. Still SMEs are facing barriers in getting credit from Banks & NBFIs as collateral, high interest rate of loan, various documents and experience in case of startup business.

Chapter 6: Recommendations

To ensure SME development, employment generation, poverty alleviation & economic development of the country SMEs access to finance is of crucial need. Therefore, for the growth & smooth functioning of SMEs following things to be done:

a) Government should take appropriate measures to ensure enough & timely finance for SMEs and remove all barriers in access to finance. Digital financing systems using digital platform can be a game-changer in this situation.

b) Time bound action plan mentioned in SME Policy 2019 related to SMEs access to finance to be implemented timely and continuing it as required.

Chapter 7: References

1. Ahmed, K. 2009. Performance Evaluation of SMEs of Bangladesh. International Journal of Business and Management, Vol. 4, No. 7: 126.
2. Alam, M. S. and Ullah, M. A. 2006. SMEs in Bangladesh and Their Financing: An Analysis and Some Recommendations, The Cost and Management Vol. 34 No. 3: 57-72.
3. Asian Development Bank. 2014. Asia SME Finance Monitor, Philippines.123-126pp.
4. Bangladesh Bank. 2010. Small and Medium Enterprise (SME) Credit Policies & Programmes, Dhaka.
5. Bangladesh Bank, SME & Special Programmes Department. 2016. Master Circular for SME Financing (SMESPD Circular No-1), Dhaka.
6. Bosri, R. 2016. SME Financing Practices in Bangladesh: Scenario and Challenges Evaluation. World Journal of Social Sciences Vol. 6.No. 2: 39 –50.
7. Chowdhury, M. S. A., Azam, M. K. G. and Islam, S. 2013. Problems and Prospects of SME Financing in Bangladesh, Asian Business Review, Volume 2: 51-57.
8. European Commission. Guide to EU Definition of Small and Medium Sized Enterprises (SMEs), What is an SME? 2012, Enterprise and Industry, http://ec.europa.eu/enterprise/policies/sme/facts-figuresanalysis/sme-definition/index_en.htm, retrieved on October 14, 2012
9. Helaluz Zaman, A. K. M. and M. Jahirul Islam. 2011. Small and Medium Enterprises Development in Bangladesh: Problems and Prospects. ASA University Review, Vol. 5 No. 1 :145.
10. Ministry of Justice. The Companies Act 2006 (Amendment) (Accounts and Reports) Regulations 2008, The National Archives, The United Kingdom Government,

http://www.legislation.gov.uk/uksi/2008/393/part/2/made#page Title, retrieved on October 15, 2012.

11. Ministry of Finance. 2022. Bangladesh Economic Review 2022, Government of the People Republic of Bangladesh, Dhaka.

12. Mohammad A. Arafat, Ezaz Ahmed. Managing Human Resources in Small and Medium Enterprises (SMEs) in Developing Countries: A Research Agenda for Bangladesh SMEs, European Journal of Commerce and Management Research (EJCMR), www.ejcmr.org., Vol-2, Issue March 2013.

13. National Industrial Policy. 2016. Ministry of Industry, Government of the People's Republic of Bangladesh, Dhaka.

14. Qamruzzaman ACMA, M. 2015. Productivity and Performance Evaluation of SME Sector in Bangladesh: Evidence from the Historical Data. Journal of Islamic Finance and Business Research, Vol. 3. No. 1: 14-22.

15. Small Business Administration. What is SBA's definition of a small business concern? The United States Small Business Administration, http://www.sba.gov/content/what-sbasdefinition-small-business-concern, retrieved on October 15, 2012.

16. Taslim Uddin, Md. 2014. A Study on Financing SME"s in Bangladesh. Journal of Economics and Sustainable development, Vol. 5, no.11: 162.

17. Website of Bangladesh Bank -Retrieved from https://www.bb.org.bd/on 22 August, 2022.

18. Website of SME Foundation - Retrieved from www.smef.org.bd on 22 August, 2022.

Prospects of Linking Employee Performance with Annual Performance Agreement: A case study on Bangladesh

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Abstract

The government of Bangladesh introduced Annual Performance Agreement (APA) in 2014-15 financial year. But due to the absence of its linkage with employee performance it could not fulfil the desired objectives. The main objective of this research was to find out the scopes of linking employee performance with APA. This research was based on data from both primary and secondary sources. For collecting primary data, a survey was conducted involving the selected number of policy makers and government employees. Besides a number of experts in the relevant field were interviewed as Key Informants. The study identified several potential challenges in doing the same including the attitude towards maintaining status quo, weakness in the structure of APA and implementation of performance incentive system. At the same time the study suggested some measures to address these challenges that include developing a comprehensive guideline for employee performance management, removing the weakness of APA system, monitoring the compliance of guidelines, introducing reward and sanction etc. The study revealed several ways of linking employee performance with APA. The most prevalent approach was cascading down the objectives, functions and targets of organizational performance agreement to different administrative hierarchies.

1.0. Introduction

1.1. Background

In the 1980s, performance management concept was introduced to government management with the emergence of the concept 'New Public Management'. The main objectives of introducing this concept were to enhance the efficiency and

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effectiveness of the public organizations and proper utilization of public resources. Another requirement was to improve the national competitiveness in the global world (**Ou Chung-Ya, 2008).** The globalization pushes every country-both developed and developing-to be competitive and result oriented. The race among nations is being won not by those nations that have more resources or ideas. Rather, the outcome of this race among nations is decided largely by how effectively nations use their resources and how well they implement good ideas and policies (Trivedi, 2018).

There is also a continuous pressure on the governments around the world to make the public agencies more efficient and dynamic by reducing the costs and averting wastages (Yang & Torneo, 2016). Public sector in Bangladesh is not an exception to that. The government formed several commissions at different times to reform public administration. Of these, in the report of the Public Administration Reform Commission-2000, specific recommendations were made for establishing an efficient, accountable and service-oriented public administration under a robust performance management system. Subsequently, the National Integrity Strategy-2012 recommended the introduction of performance auditing in public organizations. Apart from that, in the Sixth Five Year Plan (2011-2015), special emphasis was given on establishing accountability for the improvement of performance of the public organizations. In addition, the KPIs (Key Performance Indicators), under the Medium-term Budgetary Framework of the Finance Division played a supportive role in introducing result-based performance management system in public sector organizations in Bangladesh. And the outcome was introduction of a holistic performance management system for the public sector organizations in 2014-15 financial year named 'Annual Performance Agreement'.

Annual Performance Agreement (APA) is a record of understanding between Hon'ble Prime Minister, represented by Cabinet Secretary and a Minister represented by the Secretary of a Ministry/Division responsible for implementing this mandate. In addition, the head of the other subordinate offices sign the agreement with the head of their superior offices. In each case, the tenure of the agreement is 01 (one) year (Cabinet Division, 2015).

The current 'Annual Performance Agreement' under government performance management system in Bangladesh is characterized by the attributes directly linked with organizational performance. Though employee performance plays an important role for organizational performance, the link between these two is not

explicit here in Bangladesh. Therefore, it may be difficult to improve organizational performance-the core objective of performance management, without improving individual performance through appropriate measures.

However, in section 19 of the Civil Service Act, 2018 the issue of result-oriented performance auditing for the government staffs has been included. This has paved the way for introducing such system in Bangladesh. But there is no study on how to introduce this system. The current study aims at analysing this issue form the perspective of Bangladesh. This study will further draw some inferences on how to link these two types of performance and this will contribute to develop an effective policy for the same.

1.2. Rationale of the Study

The government of Bangladesh is committed to achieve the vision of 'Developed Bangladesh' by 2041 which has been outlined in the 2nd perspective plan. Vision 2041 requires achieving a number of economic, social and environmental targets. In order to achieve these targets, both public and private sector organizations need to perform at optimum level. Public sector performance is basically the performances of the organizations working at all levels of the government. Again, performance of any organization largely depends on the performance of its employees. Furthermore, without appropriate capacity the employees cannot perform at the desired level. So, focusing only on organizational performance will not bring the expected result unless its employees are not well connected with the overall vision and goals of that organization. A comprehensive system should be in place for managing the performance issues of the employees. Unfortunately, it is absent in Bangladesh.

One important component of any performance management system is performance incentive. It is considered that a performance measurement system with no (or random) consequences is not only a non-starter as a performance management system but also a waste of time and money. Performance measurement is merely the starting point for performance management. It is observed throughout public and private sector that the performance of any organization can be improved in a sustainable manner only if it has a meaningful performance incentive system. This requires clear assignment of responsibilities among teams and individuals across the public organization. This links the performance of the organization to the welfare of its employees. This allows the employees to achieve organizational objectives in their own self-interest. Though

Bangladesh introduced APA long ago but individuals are not systematically aligned with it. Consequently, a performance incentive system is yet to be developed here.

Lastly, there is no or very few studies on the issue of linking individual performance with organizational expectations. This study is an attempt to fill in this gap. Over all findings and recommendations of the study will provide an insight to the policy makers on planning and developing a system to this end. And thus, the study will play a significant role in improving the performance of the individual employees as well as public organizations in Bangladesh.

1.3. Problem Statement

The introduction of APA for the public organizations in 2014-15 financial year was a ground breaking reform initiative of the government. But this system only evaluates the performance of the public organizations. Up until now the employee performance is evaluated through the traditional Annual Confidential Report (ACR). This report includes 25 different aspects including personal and work-related attributes. Out of 100 marks in ACR, only 8 marks are allocated for the evaluation of employee's amount of work and quality of work done in a calendar year.

While analysing the management of performance at individual level, it is important to understand that the current systems in government only 'appraise' and not really 'manage' performance. Effectiveness and credibility of the ACR system that is based on the philosophy of control and secrecy has been questioned and viewed negatively. Apart from that the current ACR system suffers from some flaws; such as:
- it lacks in quantification of targets and evaluation against achievement of targets;
- the ACR system does not give scope for a two-way consultative process and there is a lack of clarity about performance standards;
- the quality is seriously affected when reporting officers write ACRs of a large number of employees, and
- many reporting officers pay little attention to distinguish between good and average workers.

As a consequence of the existing ACR system most Government officials end up getting very good/outstanding grading which is considered "good for promotion" and there is no motivation for real and silent performers (Department of Administrative Reforms and Public Grievance, 2014). According to Osborne and Gaebler, failing to measure the performance of individuals leads to failure in organizational performance.

In the organizational context, performance is usually defined as the extent to which an organizational member contributes to achieving the goals of the organization. Employees are a primary source of competitive advantage in service-oriented organizations (Luthans and Stajkovic, 1999; Pfeffer, 1994). Therefore, it may be difficult to improve organizational performance without improving individual performance. The best way to ensure employee performance is to link his/her objectives with the organizational goals. The linking process starts at the top and moves down the organizational structure to the individual. Thus, the organization's vision and objectives are cascaded downwards up to the employees. The current organization-based APA system in Bangladesh does not have any arrangement of transmitting organizational goals from top to the bottom level of the entity. This creates a gap between the performance demand of the top management and achievement of the individuals. Thus, the organization ends up with undesired poor performance.

1.4. Objective of the Study

The main objective of this study was to find out the scopes of linking employee performance with Annual Performance Agreement. The study also had the following sub-objectives:
  i)   To identify the potential challenges in Bangladesh in linking the both; and
  ii)   To find out the ways on how to link individual performance with APA

2.0 Literature Review

According to Australian Public Service Commission (2018) effective performance management requires a framework that integrates organisational, business and individual planning and performance. It can involve: clarifying performance objectives and linking these with organisational business plans; periodic performance appraisal of individuals or teams against the

achievement of these objectives; team and individual development to build capabilities; and evaluating the contribution of individual, team and organisational performance.

The development of mainstream human resource management (HRM) theory has long been concerned with how people management can enhance performance outcomes. It is only very recently found that interest has been shown in the parallel stream of research on the link between employee engagement and performance, bringing the two together to suggest that engagement may constitute the mechanism through which HRM practices impact individual and organisational performance (Truss et al., 2013).

Employee engagement refers to a high level of motivation to perform well at work, combined with passion for the work and a feeling of personal connection to the team and organization. Engaged employees and managers invest their best efforts in their work every day to ensure the success of their teams and organization (Marrelli, 2011). Potential engagement drivers are — leadership and managing change, the work itself, the mission, supervisors, resources, team members, compensation and benefits, and training and development (Lavigna, 2019).

A study by Sibanda, Muchena and Ncube (2014) on employee performance of a public sector organization in Zimbabwe reveals that low level of employee engagement results in below standard employee performance among most of the employees. However, the study also recommended that lifting employee engagement alone may not necessarily improve organizational performance unless other conditions such as financial, managerial etc. are addressed properly. Although improved performance and productivity is at the heart of engagement, it cannot be achieved by a mechanistic approach which tries to extract discretionary effort by manipulating employees' commitment and emotions. Employees see through such attempts very quickly; they lead instead to cynicism and disillusionment. By contrast, engaged employees freely and willingly give discretionary effort, not as an 'add on', but as an integral part of their daily activity at work. Levels of engagement matter because employee engagement can correlate with performance. Even more significantly, there is evidence that improving engagement correlates with improving performance (MacLeod and Clarke 2009).

A study on employee engagement on organization (Otieno, Waiganjo and Njeru 2015) identified that Employee engagement is a major determinant of organization performance. It also recommended that organization should emphasize on induction training as it will help in clarifying the roles of employees thus improving the general organization performance.

A study by Guest (2014) showed that that employee engagement and organizational performance approaches operate in "different worlds" and that this reflects a neglect of an evidence-based approach to management of employees since work engagement has much the stronger evidence base. The paper highlights the need for a viable and integrated "engagement strategy" if organizational engagement is to thrive in the future and sets out the core elements of such an approach. If it is to succeed in having an impact, organizational engagement needs to become more like an HR system. There may be a risk that greater complexity scares off some managers; but this will be a risk worth taking. Apart from this literature on employee and organizational performance management showed that different countries have successfully linked the both. The best examples are New Zealand, Australia, Canada, United States of America, United Kingdom, Norway, Ireland, Italy and other countries like South Korea, Philippines, Malaysia, Indonesia, Kenya etc (OECD, 1997). This certainly indicates the prospects of linking the both in Bangladesh.

3.0 Methodology

The study used a mix method of survey and Key Informant Interview (KII) for collecting primary data from the relevant sources. Survey was conducted through two sets of semi structured questionnaires. The study employed a mix method for data collection because this method provides more comprehensive and reliable data. The strength from one method can be used to overcome the weakness of other method.

For the survey **72** respondents from policy makers and APA team members were selected purposively from **72** different government organizations. The formation of the respondents was **52** from same number of Ministries/Divisions and **20** from Directorate/Agencies. Besides, another set of semi structured questionnaire was used to conduct a survey with **38** government employees from different ministry/divisions. Apart from this Key Informant Interview (KII) was also conducted with 10 experts in the area. So, the total sample size was 120.

4.0 Result and Discussion

The findings of the study have been summarized below;

4.1. Analysis of data from Key Informant Interview

Ten Key Informants including acting and ex-secretaries of the government, academicians were interviewed through a semi structured questionnaire on various aspects of APA and individual performance. Their opinions have been summarized below

4.1.1. Important prerequisites for successful implementation of APA

The informants were given five options regarding the important prerequisites for successful implementation of APA and asked them to rank the options based on importance (rank 1-most important and rank 5 least). Their opinions have been summarized and ranked in the following table;

Table 4.1: Important prerequisites for successful implementation of APA

Sl	Option	Total score according to ranking	Score
1	Linking individual performance with APA	39	25.82%
2	Positive role of the head of the organization	38	25.16%
3	Appropriate capacity of the employees	21	13.90%
4	Ownership of the employees	26	17.21%
5	Appropriate policy	27	17.88%
	Total	151	100%

As per the opinion of the informants, linking individual performance with APA was identified as the most important pre-requisite for the successful implementation of APA and this was followed by positive role of the head of the organization, appropriate policy, capacity development etc.

Figure 4.1: Prerequisites for successful implementation of APA

Prerequisite for successful implementation of APA

Appropriate policy 18%
Ownership of the employees 17%
Appropriate capacity of the employees 14%
Linking individual performance with APA 26%
Positive role of the head of the organization 25%
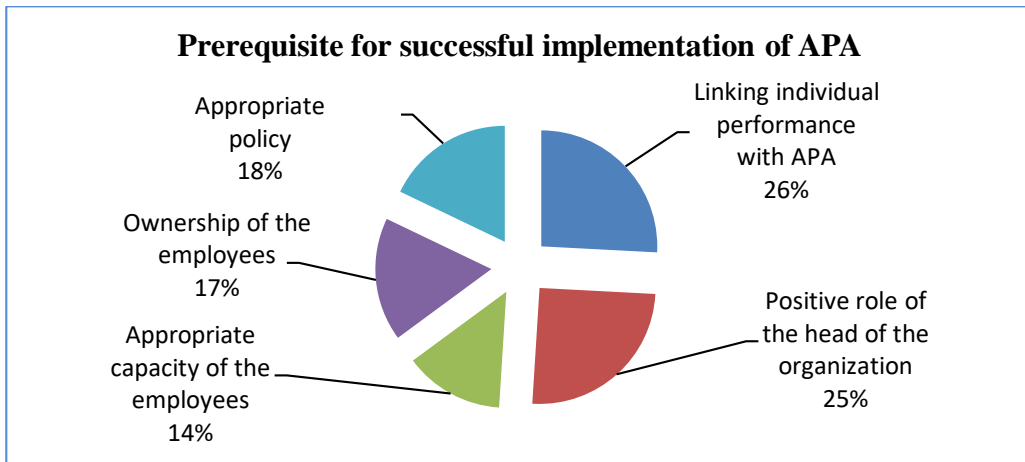
Source: Key Informant Interview

4.1.3. They were asked whether they think it is necessary to link individual performance with APA

All of the informants underscored the necessity of linking individual performance with APA.

4.1.4. Whether linking employee performance with APA can increase performance?

Linking employee performance with APA can significantly increase the performance of government employees. The respondents were given this agreement/disagreement type of question. Their comments have been summarized below;

Table 4.2: Whether linking employee performance with APA can increase performance?

No of respondents	Opinion	Frequency	Percentage
10	Strongly agree	7	70%
	Agree	3	30%
	Neutral	0	0
	Strongly disagree	0	0
	Disagree		0

According to the opinion of the respondents 70% of them were strongly agree with the statement while rest 30% were agree.

Figure 4.2: Whether linking can increase the performance of employees?
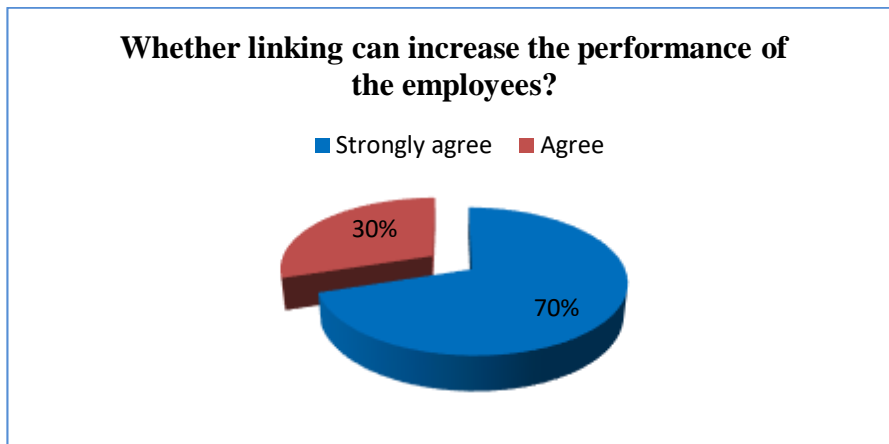
Source: Key Informant Interview

4.1.5. How employee performance can be linked with the APA?

The informants were asked how employee performance can be linked with APA. They mentioned the following ways of linking the both. The ways have been summarized below;

Approach 1

Individual performance can be linked with APA through cascading objectives, functions, activities and targets described in the APA down to directorate, wing, branch, section, team and individual level.

Approach 2

The organizational performance agreement with similar format may be cascaded down to different administrative hierarchies.

Approach 3

The individual officers/employees will be identified for whose bad performance the organization shown reduced scores and their individual performance rating should be downgraded.

4.1.6: Major challenges of linking employee performance with APA

As per the opinion of the informants the major challenges of linking the both includes unwillingness of officials towards reforms and introduction of any new system, culture of discretionary decision making and working on ad-hoc system (instead of systematic), fair and impartial evaluation by the higher officials, effective use of evaluation results for posting, promotion and other incentives including financial incentives for better performers, linking individual performance with APA without addressing soft targeting may increase instances of soft targeting as it will provide more incentive to manipulate APA. Other challenges include lack awareness in implementing APA properly, reluctance of employees to be assessed and monitored, absence of appropriate recognition of good work/ incentive mechanism etc.

4.1.7. Suggestions on how to overcome these challenges

The informants were asked to make suggestions on how to overcome the challenges. Their suggestions include (i) strong commitment from senior management, consultations with stakeholders; removal of the weaknesses of the APA system, developing comprehensive guidelines for APAR by the Ministry of Public Administration, monitoring the compliance of guidelines by the Cabinet Division, MoPA and relevant Ministry; formation of a task force under Cabinet Division, strong motivational directives from highest political authority to the top level of bureaucracy, on the job coaching and mentoring mechanisms; intensive training and knowledge sharing; introducing reward and sanction in government performance management system; capacity development, clear evaluation guidelines, and a clear M&E guidelines.

4.2. Analysis of Data from Government Employees

A survey with a semi structured questionnaire was conducted with the employees of 38 different ministries to understand their views on different aspects of employee related performances. The result of this survey has been summarized below;

4.2.1. How work/performance is done in office?

In answer to the question how performance/work is done at office, almost 87% of the respondents mentioned that it was done through both written job description and verbal instructions as shown in the table below.

Table 4.3: How work/performance is done in office?

SL No	Procedure	No of respondents	Respondents (%)
01	Written job description/order	5	13.33
02	Verbal instruction	0	0.00
03	Both	33	86.67
Total		**38**	**100**

Figure 4.3: How work/performance is done in office?
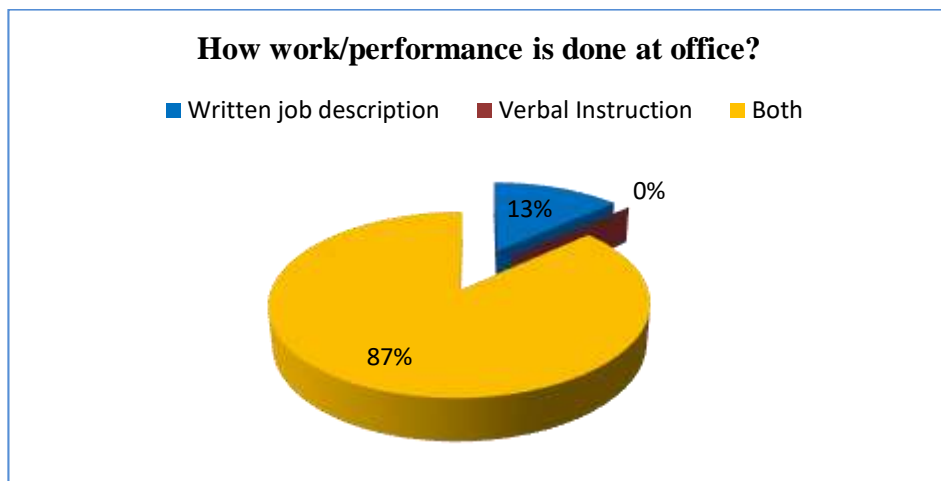
Source: Field Survey

4.2.2. Influence of individual performance on overall organizational performance

This question was asked to understand the influence of individual performance on organizational performance. As shown in the table below about 77% of the respondents opined that it had a lot of influence on organizational performance while rest 23% mentioned the influence as moderate.

Table 4.4: Influence of individual performance in overall organizational performance

SL No	Influence	No of respondents	Respondents (%)
01	Yes, a lot	29	76.67
02	Not at all	0	0
03	Moderately influences	9	23.33
Total		**38**	**100**

Figure 4.4: Influence of individual performance on overall organizational performance
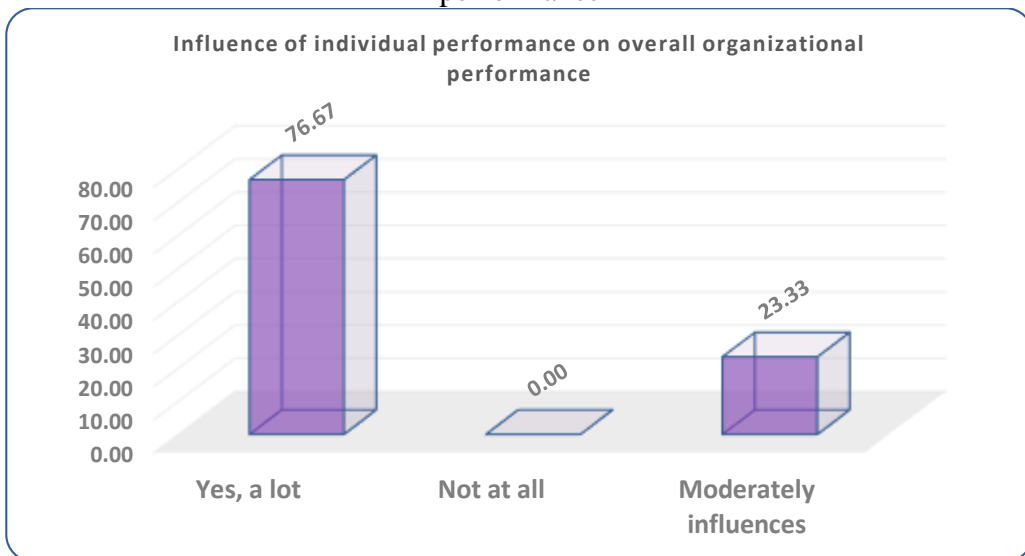
Source: Field Survey

4.2.3. Effectiveness of current evaluation process

To understand the effectiveness of the current evaluation process three options were given to the respondents. About 77% of the respondents underscored the current evaluation process as ineffective.

Table 4.5: Effectiveness of current evaluation process

SL No	Effectiveness	No of respondents	Respondents (%)
01	Effective	6	16.67
02	Not effective	29	76.67
03	Not Known	3	6.67
Total		**38**	**100**

Figure 4.5: Effectiveness of current evaluation process
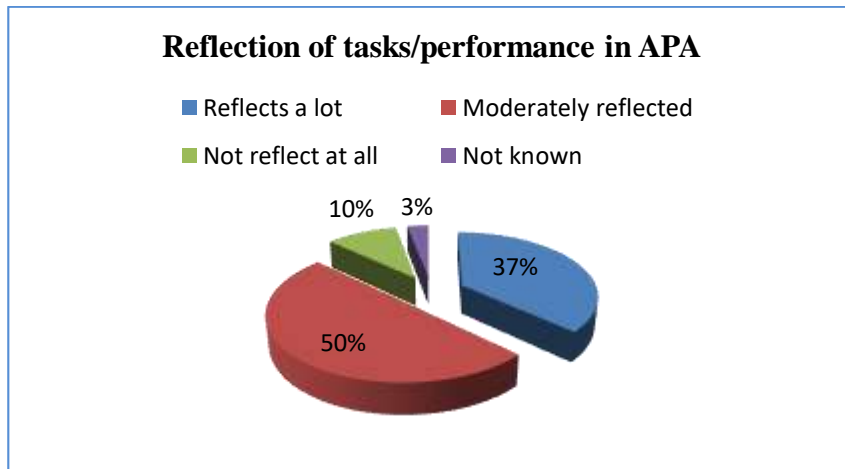

Source: Field Survey

4.2.5. Reflection of tasks/performance in the APA

Regarding the reflection of their tasks/performance in APA the respondents were given four options mentioned in the table below. Fifty percent of the respondents stated that their tasks/performance is moderately reflected in APA while about 37% of them mentioned that their tasks are largely reflected in APA.

Table 4.6: Reflection of tasks/performance in the APA

SL No	Reflection	No of respondents	Respondents (%)
01	Reflects a lot	14	36.67
02	Moderately reflect	19	50.00
03	Not reflect at all	4	10.00
04	Not known	1	3.33
Total		**38**	**100**

Figure 4.6: Reflection of tasks/performance in the APA
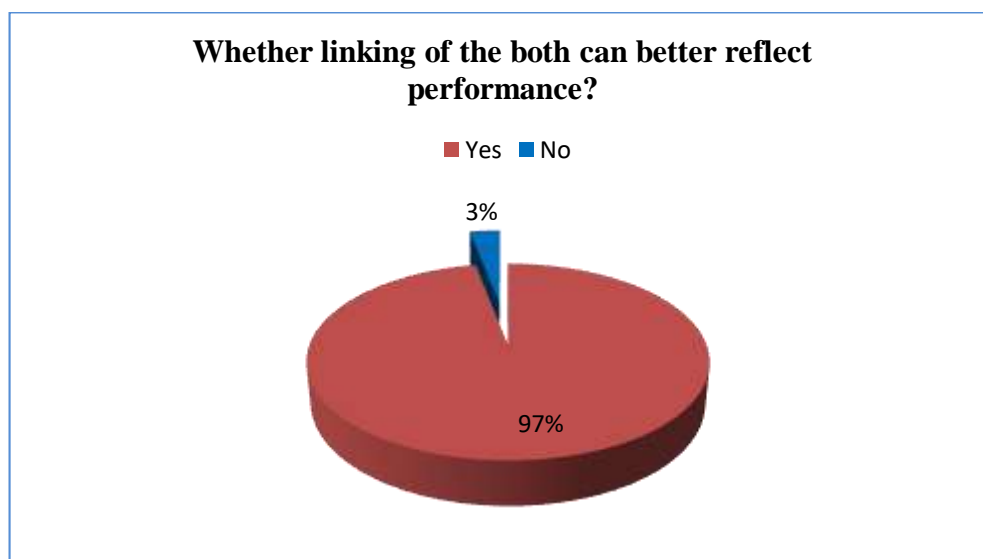

Source: Field Survey

4.2.6. Can linking the desk works/performance of employees with APA better reflect/explain performance?

The respondents were asked whether the linking of the desk works/performance of employees with APA could better reflect their performance. Almost 97% of the respondents provided an affirmative answer.

Table 4.7: Linking the desk works/performance of employees with APA can better reflect/explain performance

SL No	Does better	No of respondents	Respondents (%)
01	Yes	37	96.67
02	No	1	3,33
Total		**38**	**100**

Figure 4.7: Linking the desk works/performance of employees with APA can better reflect/explain performance

Source: Field Survey

4.2.7: Major Challenges of linking individual performance with APA.

The challenges identified by the respondents include lack of proper understanding about the operation and mission of APA, lack of capacity of the employees, unequal work distribution, prevalence of undefined works, absence of appropriate policy to manage performance and absence of performance standard.

4.3. Analysis of data from the Policy Maker/APA team leaders

4.3.2: Important prerequisites for successful implementation of APA

The respondents were asked to rank against the five criteria as mentioned in the table below. As per their ranking linking individual performance with APA was ranked as 1 and got highest score of 35.35% as important prerequisite. It was followed by positive role of the head of the organization with a score of 27.30%, appropriate capacity of the employees with a score of 16.98% and ownership of the employees got a score of 11.95%.

Table 4.8: Important prerequisites for successful implementation of APA

SL No	Prerequisites	Total score ccording to ranking	Score (%)
01	Linking individual performance with APA	281	35.35
02	Positive role of the head of the organization	217	27.30
03	Appropriate capacity of the employees	135	16.98
04	Ownership of the employees	95	11.95
05		67	8.43
Total		**795**	**100**

Figure 4.8: Prerequisites for successful implementation of APA
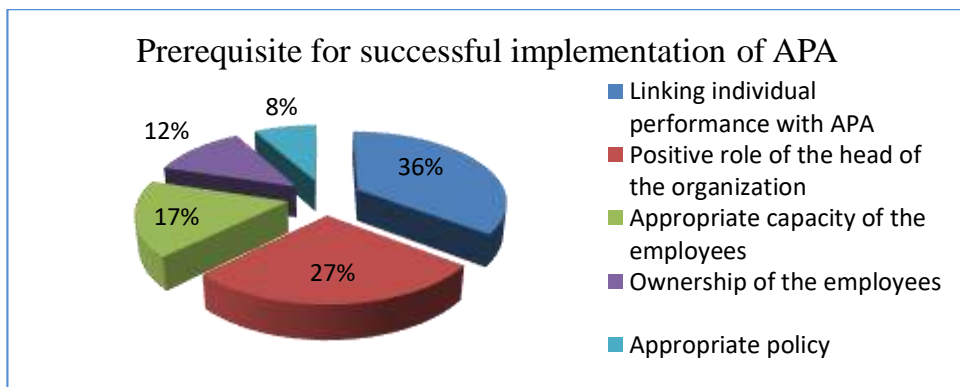
Source: Field Survey

4.3.3. Necessity of linking employee performance with APA

The respondents were asked whether it was necessary to link individual performance with APA. Around 64% of the respondents opined affirmative in this regard while rest 36% answered negative.

Table 4.9: Necessity of linking employee performance with APA

SL No	Necessity	No of respondents	Respondents (%)
01	Yes	46	**64.15**
02	No	26	**35.85**
Total		**72**	**100**

Figure 4.9: Necessity of linking employee performance with APA
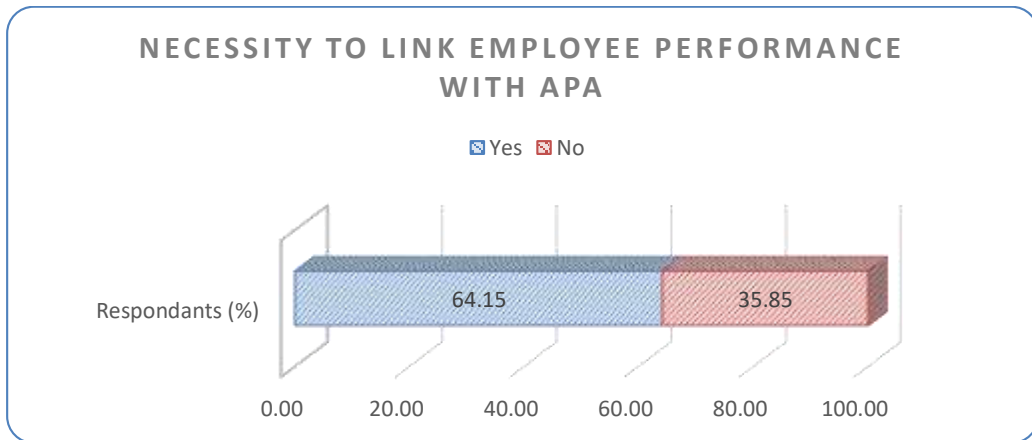
Source: Field Survey

4.3.5. Why is it necessary to link individual performance with APA?

Regarding this issue the opinion of the respondents includes linking individual performance might significantly increase the performance of the Government, ownership of the individual might be increased, skill of the individual might be

improved. Other opinion includes APA itself is a teamwork, every individual should be responsible for his/her part; it would encourage pro-activeness among individuals and it would generate a common vision among the employees which would help achieving organizational targets.

4.3.6. How individual performance can be linked with the APA?

The respondents were asked to suggest on how to link individual performance with APA. They mentioned that it could be done through formulating appropriate policy, a certain number from APA could be added with individual's annual evaluation score, through formulating individual work plan for the individuals and restructuring and modification of current ACR system.

4.3.7. Major challenges of linking individual performance with APA

As per the opinion of the respondents the major challenges of linking the both were lack of proper job distribution, frequent transfer of employees, lack of practical skills including computer and internet uses, diversity among the working procedures of different section and offices and measurement problem of performance standards.

4.3.8. Suggestions on how to overcome these challenges

The respondents highlighted the aspects that includes structure of APA should be simplified; individual responsibility should be clearly identified; reward and sanction for good and bad performer should be introduced; capacity should be developed in this regard and a better framework should be developed for linking IP with APA.

4.4. Overall Findings

Results from the Key Informants Interview and questionnaire survey with APA team leaders, government employees and policy makers have been summarized below;

4.4.1 Potential challenges of linking individual performance with APA

Regarding the potential challenges of linking individual performance with APA the study revealed that unwillingness of officials towards reforms, culture of discretionary decision making and working on ad-hoc system (instead of systematic), absence of a fair and impartial evaluation by the higher officials,

effective use of evaluation results for posting, promotion and other incentives including financial incentives for better performers, linking individual performance with APA without addressing soft targeting in APA, Other challenges include lack awareness in implementing APA properly, reluctance of employees to be assessed and monitored, lack of proper job distribution absence of appropriate recognition for good performance.

4.4.2 Ways on how to link individual performance with APA

The study suggested different approaches of linking the both. Among those the potential approaches the most suggested was linking the both through cascading objectives, functions, activities and targets described in the APA down to directorate, wing, branch, section, team and individual level. Another approach was the organizational performance agreement would be cascaded down to different administrative hierarchies and the third approach was that the individual officers/employees will be identified for whose bad performance the organization achieved reduced scores and their individual performance rating should be downgraded.

5.1. Recommendations and Conclusion

Annual Performance Agreement (APA) system facilitated measuring the performance of public organizations. But this could not fulfil the desired objective due to lack of its linkage with the performance of the employees. The present study revolved around the inconsistency between these two in the current scenario of Bangladesh. One of the main objectives of this study was to find out the scopes of linking employee performance with the organizational performance along with the challenges.

The study identified some potential challenges of linking employee performance with the organizational performance agreement. These include discretionary decision-making culture, attitude towards maintaining status quo, ambiguity about the process and purpose of APA, weakness in the structure of APA itself, implementation of performance incentive system based on the evaluation of employee performance. The study suggested some measures to overcome these challenges that include developing comprehensive guidelines for linking, removing the weakness in APA system, arrange intensive training and introduce an incentive system based on performance.

Regarding the ways on how to link employee performance with APA the study explored several ways. Among the approaches the most prevalent was to cascade down the objectives and functions of APA through different administrative layers and hierarchies up to individual. Under this approach employees in different hierarchies would be linked with organizational performance agreement through an Individual Work Plan (IWP) developed based on objectives and functions outlined in organizational performance agreement. Individual work plan would carry a substantial weightage in overall employee performance management system. The study also recommended some measures for better linkage; development of a legal framework, streamlining of the performance reporting system, ensuring appropriate support to the employees and development of a review mechanism for the improvement and sustainability of the system

References

1. Australian Public Service Commission. (2018) *Performance Management in the APS.* [online]. Available at: https://www.apsc.gov.au/performance-management-aps [Accessed 15 May 2020].
2. Cabinet Division (2015) Government Performance Management Guidelines, Government of the People's Republic of Bangladesh.
3. Guest, D. (2014) Employee engagement: a sceptical analysis, *Journal of Organizational Effectiveness: People and Performance*, 1(2) pp. 141 – 156.
4. Lavigna, B., (2019) Why Employee Engagement Matters for Government Financial Management. *Government Finance Review*, 35(4), pp.9-14.
5. Luthans, F. and Stajkovic, A.D. (1999) Reinforce for performance: the need to go beyond pay and even reward. Academy of Management Executive 13, 49–57.
6. MacLeod, D. and Clarke, N. (2009) *Engaging for success: enhancing performance through employee engagement: A report to Government of UK*, , Surrey: UK, Government of UK, Available at: https://engageforsuccess.org/wp-content/uploads/2015/08/file52215.pdf.
7. Marrelli, A. (2011) Employee Engagement and Performance Management in the Federal Sector, *Performance Improvement*,50(5), pp. 5-13.

8. Otieno, B., Waiganjo, E. and Njeru, A. (2015) Effect of Employee Engagement on Organisation Performance in Kenya's Horticultural Sector. *International Journal of Business Administration*, 6(2).

9. Ou Chung-Ya (2008) Administrative Ethics in a Context of New Public Service. Open Public Administration Review. Number 20. 119-156

10. OECD (1997) In Search of Results: Performance Management Practices, Available at https://www.oecd.org/sweden/36144694.pdf, Accessed 20 May 2020.

11. Sibanda, P., Muchena, T. and Ncube, F. (2014) Employee Engagement and Organizational Performance in a Public Sector Organization in Zimbabwe, *International Journal of Asian Social Science*,4(1), pp89- 99

12. Trivedi, P. (2018) Performance Management in Government, A Primer for Leaders Commonwealth Secretariat.

13. Truss, C., Shantz, A., Soane, E., Alfes, K. and Delbridge, R. (2013) Employee engagement, organisational performance and individual well-being: exploring the evidence, developing the theory. *The International Journal of Human Resource Management*, 24(14), pp. 2657-2669.

14. Seung-Bum Yang & Ador R. Torneo (2016) Government Performance Management and Evaluation in South Korea: History and Current Practices, Public Performance & Management Review, 39:2, 279-296,

Dynamic Relationship between Air Transport and Economic Growth in Bangladesh: A Time Series Analysis

Soma Bhattacharjee[1], Anup Kumar Talukder[2]

Abstract

This study aims to examine the dynamic relationship between air transport and economic growth in Bangladesh. To fulfil this aim, the study inspects both the short-run and long-run dynamic relationship between air transport (from the perspective of air transport (registered carrier departures worldwide), air transport (freight) and air transport (passengers carried)) and economic growth in Bangladesh. The methodology of the study is based on econometric analysis including the Augmented Dickey-Fuller (ADF) unit root test, lag length criteria, and the autoregressive distributed lag (ARDL) model using annual time-series data from the period 1985 to 2020. All data are collected from the World Development Indicators (WDI) database. The results show that, in the long run, air transport (passenger carried) has a positive significant effect on economic growth in Bangladesh. However, in the short run, air transport (registered carrier departures worldwide) has a positive but insignificant effect on economic growth. These findings suggest that paying attention to air transport (passenger carried) could rapidly increase the aviation sector's share of GDP growth. The study findings will be a valuable source of information for the Bangladesh government to develop better aviation policies that would boost the country's economy. This research will also enlarge the body of existing literature on air transportation in Bangladesh. Even though there are some descriptive studies on the contribution of the air transport industry to Bangladesh's economy, no research has been undertaken to investigate the dynamic relationship between air transport and economic growth in Bangladesh so far. This study uses a long span of data and unique econometric methodology to investigate the dynamic relationship between air transport and economic growth in Bangladesh for the first time.

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1. Introduction

According to the International Civil Aviation Organization (ICAO), Infrastructure (such as airports and air navigation facilities), manufacturing (such as aircraft, engines, and avionics), and non-transport commercial activities (such as aerial crop dusting and surveying) are all considered to be a part of civil aviation (ICAO, no date, p.1). The civil aviation sector is one of the fastest-growing transportation sectors in the world. It directly provides jobs for airlines, air navigation service providers, and airport operators. Additionally, it creates jobs along the supply chain used to move goods and services.

The final output of the civil aviation industry is delivered to customers all over the world by air transport services. Air carriers, business aviation, and other commercial operators purchase a wide range of goods and services from airports, air navigation service providers, manufacturing, and service industries, which directly support a nation's economy. In addition to its direct economic impact, the aviation industry also has what is known as 'multiplier' or 'ripple' impacts on the economy. According to the ICAO, the air transport sector of civil aviation is responsible for more than 4.5 per cent of the world's economic output, with every $100 of output and every 100 employment it creates stimulating an additional $325 in demand and 610 jobs in other industries (ICAO, no date, p.3).

Aviation has boosted economic development throughout the past century and improved people's quality of life all across the world. Air travel demand in Bangladesh is also increasing rapidly along with the increasing economy. According to a study by the International Air Transport Association (IATA), in 2018, the aviation industry, which includes airlines, airports, restaurants, and retailers as well as service providers for air navigation, supported 129,000 jobs overall in Bangladesh and 17,000 which were directly related to the industry (IATA, 2019, p.1). The remaining occupations are associated with tourism and the nation's aviation supply chain. The air transport industry, including airlines and their supply chain, is estimated to support US $449 million of GDP in Bangladesh. Spending by foreign tourists supports a further US $320 million of the country's GDP, totalling US $769 million (ibid.). In total, 0.3 per cent of the country's GDP is supported by inputs to the air transport sector and foreign tourists traveled by air (ibid.).

Finding the relationship between air transport and economic growth is a relatively recent area to be discovered. The amount of literature that examines the links

between air travel and economic expansion is comparatively minimal. Studies on that association have only lately begun to be undertaken, primarily for industrialized countries and several developing countries (Mukkala and Tervo, 2013; Brida et al, 2016a; Chi and Baek, 2013; Brida et al, 2016b; Chang and Chang, 2009; Fernandesa and Pachecob, 2010; Hakim and Merkert, 2016; Mehmood et al., 2013).

Notwithstanding the significance of the aviation industry, there is still a dearth of empirical analysis showing how the sector's growth interacts with Bangladesh's economy. There has not been a single study done on the dynamic relationship between Bangladesh's air transport industry and economic growth. Because of this, conclusions on the causes of Bangladesh's economic growth and the airline business are still conjectural. This study tries to fill up this gap.

By recognizing the importance of air transport, the main objective of this study is to examine the dynamic relationship between air transport and economic growth in Bangladesh. The specific objectives are to:
  i) find out the short-run relationship between air transport and economic growth in Bangladesh;
  ii) investigate the long-run relationship between air transport and economic growth in Bangladesh;
  iii) look into the mechanisms that result in the restoration of long-term equilibrium; and
  iv) draw some policy recommendations for the improvement of the aviation sector of Bangladesh.

This study uses time-series data between 1985 and 2020 to investigate the relationship between air transport and the economic growth of Bangladesh. It uses air transport (registered carrier departures worldwide), air transport, freight (million ton-km), and air transport (passengers carried) as preferred variables which are used as an aggregate measure of aviation activity. The results of the study would facilitate the government in taking the appropriate development plans or programmes for the aviation sector for the long term.

The structure of the rest of the paper is organized in the following manner. The growth of the aviation sector in Bangladesh is presented in section 2 followed by the literature review in section 3. Section 4 presents the research methodology and section 5 empirical results. Finally, some concluding remarks are presented in section 6.

2. The Growth of the Air Transport Demand in Bangladesh

Over the past ten years, the aviation market in Bangladesh has expanded quickly, and the sector has developed into a significant economic growth driver. The economy of Bangladesh has grown by an average of more than 6% annually in the last decade. As a result, Bangladesh has seen a surge in passengers at a pace of about 10% annually. In 2019, there were 62,60,241 travellers overall, which is the highest for the country in a single year. However, the ongoing Covid-19 pandemic forced Bangladesh to reduce the number of passengers in the following years.

The following graph displays Bangladesh's aviation passenger movement during the past ten years:

Figure 1: Bangladesh's Aviation Passenger Movement during the Past Ten Years
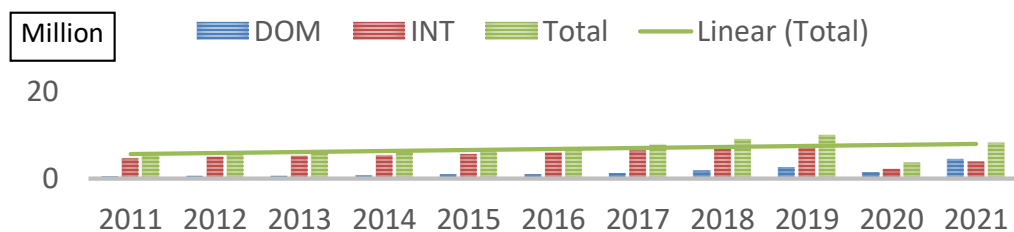
Source: Civil Aviation Authority of Bangladesh

According to the graph above, passenger traffic in the aviation industry is steadily increasing. However, compared to the South Asian region, the growth of the number of air passengers is much lower than in India and Pakistan. The following graph compares air passenger movements in India, Pakistan and Bangladesh:

Figure 2: Comparison of Air Passenger Movements in India, Pakistan and Bangladesh
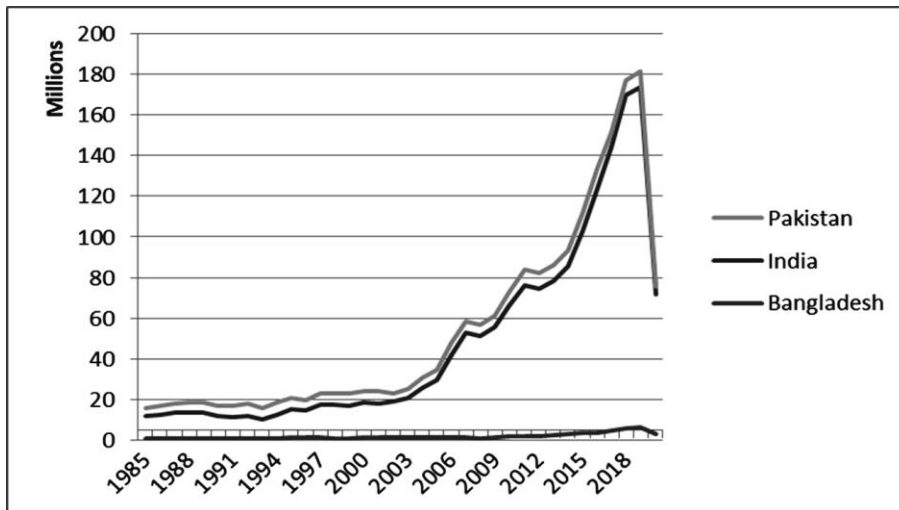
Source: Author's calculation using World Bank data

Between 2009 and 2016, the amount of cargo increased at an average annual rate of 8.4% for imports and 14.2% for exports. Air transport freight in Bangladesh plummeted by 30.16 % from 168.7 million ton-km in 2019 to 117.8 million ton-km in 2020. Since the 14.40 % surge in 2017, air transport freight was shot up by 90.75 % in 2021. The following graph displays Bangladesh's aviation passenger movement during the past ten years:

Figure 3: Bangladesh's Aviation Cargo Movement during the Past Ten Years
CARGO IN THOUSAND MT
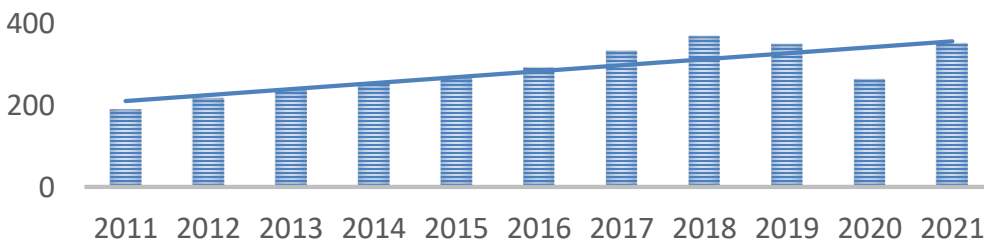
Source: Civil Aviation Authority of Bangladesh

3. Review of Related Literature

There is a relatively small body of literature that is concerned with the causal relationship between air transport and economic growth. Only in the past decade, studies have started to be conducted on that relationship mostly in developed countries (Mukkala and Tervo, 2013; Chi and Baek, 2013; Brida et al, 2016a; Balsalobre-Lorente, Driha, Bekun, and Adedoyin, 2020). However, a few studies were conducted in some developing countries including Brazil, Taiwan and India (Chang and Chang, 2009; Fernandesa and Pachecob, 2010; Hakim and Merkert, 2016; Mehmood et al.,2013; Brida et al, 2016b; Law, Zhang, Gow and Vu, 2022) and few studies were also conducted for both developed and developing economies (Lögün., Tüzemen, and Karabacak, 2018; Zhang and Graham, 2020) Mukkala and Tervo (2013) tried to find out the direction of causality between air traffic and economic growth, in diverse regions. The authors used European-level yearly data from eighty-six regions and thirteen countries on air traffic and regional economic performance from the period 1991 to 2010. For peripheral regions, this study found causality running from air traffic to regional growth whereas for core regions this type of causality was less evident. This study suggests that air transportation has a crucial role to enhance development in remote regions. Therefore, in these regions, the government should give subsidies to local airports.

Chi and Baek (2013) investigated the short and long-run relationships between economic growth and air transport (represented by air passenger and cargo movements) by using the ARDL model for the USA. The study also investigated both the short- and long-run effects of market shocks on air transport demand. Results showed that, in the long run, both air passenger and freight services are positively related to economic growth. However, in the short-run, some external shocks such as the SARS epidemic and the 9/11 event have had negative effects on air passengers' movement and these shocks have little impact on cargo demand.

Brida et al (2016a) investigated the causal relationship between air transport demand and economic growth in Italy. By using data from 1971 to 2012 and applying the Johansen co-integration and Granger Causality test, the authors found one co-integrated vector between real GDP and air transport and one-way causality running from air transport to GDP. This study shows that by improving the air transport sector, Italy can enhance its economic growth.

Balsalobre-Lorente, Driha, Bekun, and Adedoyin (2020) investigated the dynamic effect of air transport on economic growth assuming a process of social globalization in Spain. Their study's empirical results showed that air transport, the urbanization process and social globalization exert positive and significant implications for economic growth.

Brida et al (2016b) also examined the causal relationship between economic growth and air transport expansion in Mexico. They used the quarterly data from 1995qIII to 2013qIV. This research found possible causal relationships between real GDP and the number of air passengers in Mexican airports. This study found positive and both-way causality.

Chang and Chang (2009) examined the causal relationship between economic growth and air cargo expansion by applying the Granger causality approach to Taiwan. The authors used the data from 1974 to 2006 and found both long-run and bi-directional relationships between economic growth and air cargo expansion for the country.

Fernandesa and Pachecob (2010) also applied the Granger causality method for finding out the causal relationship between GNP and domestic air passenger traffic in Brazil. By using data from 1966-2006, the authors found a one-way causal relationship running from GNP and domestic air passenger traffic.

Marazoo et al. (2010) also conducted another study for Brazil using the same length of data. In this study, the authors apply the VEC (Vector Error Correction) model and Granger causality test to find out the long-run relationship between air transport demand and GDP, between 1966 and 2006 in Brazil. The authors found a long-run association among the variables and also found unidirectional causality running from GDP to air transport demand.

Mehmood et al. (2013) examined the interdependency between economic growth and aviation demand in India by applying the fully modified ordinary least square, dynamic ordinary least square and conical cointegration regression for the period of 1970 to 2012. The authors found a positive association between aviation and economic growth both in the long run and short-run as well.

Law, Zhang, Gow and Vu (2022) examined the relationship between the development of air transport, economic growth, and inbound tourism in Cambodia, Laos, Myanmar and Vietnam. These Southeast Asian nations (the

CLMV countries) have comparable histories concerning their governmental structures, the growth of their aviation sectors, and their overall economic development. The authors found bi-directional causality between air transport and economic growth in the long run. The demand for air travel is significantly impacted by inbound tourism in the long run, although there is no discernible relationship between the two in the near term.

Lögün., Tüzemen, and Karabacak (2018) studied the relationship between air transport and economic growth for twenty countries with the highest number of passengers on both international and domestic flights. The stationary of the series was tested using several panel unit root tests. To ascertain whether stationary variables have any causal relationships, the panel causality approach was used. The findings showed that both the number of passengers and the amount of freight carried are related to economic growth. In other words, air transport is impacted by economic growth.

Zhang and Graham (2020) conducted a study on a synthesis review of how the aviation industry influences the local economy. The review concentrates on quantitative research that advances the knowledge of causality. They discovered that less developed economies are more likely to exhibit the reciprocal causal relationship. For more developed economies, just one direction of the causality—from air transport to economic growth—is acknowledged.

These studies indicate causal relationships between air transport and economic growth for the investigated countries. However, not all studies found both way causality and different econometric methodologies have been applied to different studies.

In the case of Bangladesh, few studies aimed to measure the aviation sector's contribution to economic growth (Ahmed and Rahman, 2014; Sultana, 2018; Khan and Murad, 2021). However, all of them have been descriptive.

Ahmed and Rahman (2014) investigated the increasing air traffic demand and relevant issues in Bangladesh. The authors discussed details about the air transportation services in Bangladesh and concluded that air travel demand is rising with the growth of the economy.

Sultana (2018) made an overview of domestic airlines in Bangladesh. The author made a descriptive study on four main domestic airlines (Biman Bangladesh

airlines, Regent airways, Novo air, and US Bangla airlines). This study found that the function of domestic airlines is growing both commercially and socially in Bangladesh.

Khan and Murad (2021) examined the contribution of the air transport industry to Bangladesh's economy. By using descriptive analysis, the authors found that the majority of shares in both passenger and freight transport are carried by foreign carriers which indicates enormous potential for Bangladesh's air transportation industry to continue growing.

Despite the importance of the air transport sector, there remains a paucity of empirical evidence regarding the dynamic relationship between the air transport industry and economic growth in Bangladesh. While the above-reviewed studies have only been descriptive no single study conducted on the dynamic relationship between the air transport industry and economic growth in Bangladesh. For that reason, causal relationships between the air transport industry and economic growth in Bangladesh remain speculative. To fill the research gap, therefore, this study inspects both the short-run and long-run dynamic relationship between the air transport industry (from the perspective of air transport (registered carrier departures worldwide), air transport (freight) and air transport (passengers carried)) and economic growth in Bangladesh.

4. Research Methodology

4.1 Data Collection

This study examines the impact of air transport on economic growth in Bangladesh. This study makes use of annual time series data from 1985 to 2020 to determine the impact. Since the Civil Aviation Authority of Bangladesh (CAAB) in its capacity as a regulatory body was founded in 1985 by the 'Civil Aviation Authority Ordinance, 1985'; the commencement year of annual time series data is considered to be 1985. Moreover, due to the lack of data for all the variables beyond 2020, time series data are used up until that point.

Variables in the analysis include the annual growth rate of real GDP (constant 2015 US$) as a proxy of economic growth. Economic growth is the rise in the market value of the goods and services an economy produces over time, adjusted for inflation.GDP is calculated as the total gross value added by all producers who

are residents of the economy, plus any applicable product taxes, minus any subsidies not included in the value of the products. In addition, air transport (registered carrier departures worldwide), air transport, freight (million ton-km), and air transport (passengers carried) are used to represent air transportation dynamics. Registered carrier departures worldwide represent the domestic takeoffs and takeoffs abroad of air carriers registered in the country. Air transport, freight comprises the volume of freight, express, and diplomatic bags carried on each flight stage (operation of an aircraft from takeoff to its next landing) which is measured in metric tons times kilometres travelled. Air passengers carried include both domestic and international aircraft passengers of air carriers registered in the country (World Bank, 2022). All data are collected from the World Development Indicators (WDI) published by the World Bank (2022).

4.2 Empirical Model

The empirical model for this study can be written as follows:

$$GGDP = f(LATD, LATF, LATPC)(1)$$

Where:
$GGDP$ –Annual growth rate of real gross domestic product,
$LATD$–Air transport (registered carrier departures worldwide),
$LATF$–Air transport, freight (million ton-km), and
$LATPC$–Air transport (passengers carried).

Therefore, the linear equation of the econometric model (1) is given as follows:

$$GGDP = \beta_0 + \beta_1 \, LATD_t + \beta_2 \, LATF_t + \beta_3 \, LATPC_t + \mu_t(2)$$

Where:
β_0–the constant term,
$\beta_1 - \beta_3$–represents parameters,
μ – an error term and
L–the logarithm form of the variables.

4.3 Econometric Methodology

4.3.1 Unit Root Test

For econometric analysis, the first step is to check the stationarity of the time-series data. There are different types of methods that can be used to test the stationarity of time series data. This study uses the Augmented Dickey-Fuller (ADF) unit root test to test the stationarity of time series data.

4.3.2 Selection of optimal lag

Optimal lag order selection for the time series data is an important initial step. By using the minimum information criterion, such as Akaike Information Criterion (AIC), sequential modified LR test statistic, Hannan-Quinn information Criterion (HQC), Final Prediction Error (FPE), Schwarz Information Criterion (SIC) optimal lag order selection can be done.

4.3.3 The Autoregressive Distributed Lag (ARDL) Model

To find out the relationship between the aviation sector and economic growth in Bangladesh, this study uses an autoregressive-distributed lag (ARDL) test approach. The ARDL model has several benefits. Firstly, when the variables are integrated in a different order, such as (I(0) or I(1)), this model can be used (Pesaran, Shin and Smith,2001). Secondly, this model has enough lags to represent the data generation process in a general-to-specific modelling framework (Pesaran *et al.*, 2000). Thirdly, this model can be transformed into a dynamic Error Correction Model (ECM) using a simple linear transformation, allowing for inferences on long-run estimations (Banerjee et al., 1993; Frimpong and Oteng-Abayie, 2006). All of these are impossible in alternative co-integration approaches, such as Engle and Granger's (Toda and Phillips, 1993).

Because of the following advantages over other co-integration models, the ARDL model is used in this study: firstly, this model outperforms other models in terms of sample size, which can be as small as 30 to 80 observations (Ghatak and Siddiki, 2001), secondly, this model can be utilized regardless of whether the fundamental variable is I (0), I (1), or a combination of both, thirdly, when the lags for this model are appropriate, the model is right for serial correlation, finally, the long-run and short-run co-integration relationships may be calculated with unbiased results using this model (Pesaran et al., 2001).

The ARDL representation of equation (3) is as follows:

$$\Delta GGDP_t = \beta_0 + \sum_{i=0}^{n} \beta_{1i}\,\Delta LATD_{t-i} + \sum_{i=0}^{n} \beta_{2i}\,\Delta LATF_{t-i} + \sum_{i=0}^{n} \beta_{3i}\,\Delta LATPC_{t-i}$$
$$+ \sum_{i=1}^{n} \beta_{4i}\,\Delta LGGDP_{t-i} +$$

$$\varphi_1 LATD_{t-1} + \varphi_2 LATF_{t-1} + \varphi_3 LATPC_{t-1} + \varphi_4 LGGDP_{t-1} + \mu_{1t} \quad (3)$$

Where:
Δ – difference operator,
β_0– constant,
β_{i1}–β_{i4} and φ_{t1}– φ_{t4}– coefficients, and
μ_{1t}–white noise disturbance term.

Here the null and the alternative hypothesis are as follows:
$$H_0: \varphi_1 = \varphi_2 = \varphi_3 = \varphi_4 = 0 \quad (4)$$
(No co-integration or no long-run relationship exists).
$$H_1: \varphi_1 \neq \varphi_2 \neq \varphi_3 \neq \varphi_4 \neq 0 \quad (5)$$
(Co-integration or long-run relationship exists).

The estimated F statistics will be compared to the upper and lower bound critical values. The null hypothesis will be rejected in this case if the calculated F statistic value exceeds the upper bound; it cannot be rejected if the calculated F statistic value is less than the lower bound; and the test result will be inconclusive if the calculated F statistic value is between the lower bound and upper bound (Pesaran et al., 2001).

When the variables in equation (3) are co-integrated or there is evidence of a long-run relationship among the variables, then the error correction models can be estimated as follows:

$$\Delta LGGDP_t = \beta_0 + \sum_{i=0}^{n} \beta_{1i}\,\Delta LATD_{t-i} + \sum_{i=0}^{n} \beta_{2i}\,\Delta LATF_{t-i} + \sum_{i=0}^{n} \beta_{3i}\,\Delta LATPC_{t-i}$$
$$+$$
$$+ \sum_{i=1}^{n} \beta_{4i}\,\Delta LGGDP_{t-i} + \Upsilon_1\,ECM_{t-1} + \mu_t \quad (6)$$

ECM_{-1} in equation (6) denotes the one-period lag error correction term. Here, it Υ stands for the ECM_{t-1}'s coefficient also referred to as the speed of adjustment parameter. A long-run (co-integration) link will be further supported by this result when this parameter has a negative sign and is statistically significant. The speed of adjustment will increase as the magnitude of the adjustment parameter increases. Additionally, the short-run dynamics of the calculated relationship can be deduced from equation (6).

4.3.4 The Diagnostic Tests

The robustness of the study can be done by using several diagnostic tests such as the Breusch-Pagan-Godfrey test, the Breusch-Godfrey Serial Correlation LM test, the Jarque-Bera normality test, the cumulative sum (CUSUM) test and the CUSUM of the square test which all has been done in this study. To do the econometric analysis, this study uses the Eviews 10 software.

5. Empirical Results

5.1 Unit Root Test
In (Table 1), the null hypothesis for the ADF test is that the series has a unit root against the alternative hypothesis that the series has no unit root. The ADF test results (Table 1) show that the GGDP and LATF are stationary at a level that is those variables are integrated at I(0), whereas LATD and LATPC variables become stationary after first differencing that is those variables are integrated at I(1). As a result, from (Table 1) it can be said that the variables are integrated into both I(0) and I(1) and no variables are integrated into I(2). The following step of this study is to perform ARDL bound test approach to investigate the existence of a co-integrating relationship among the variables.

Table 1: Results of Augmented Dickey-Fuller (ADF) Unit Root Tests

Variable	Augmented Dickey-Fuller test results	
	Stationarity in levels	Stationarity in first differences
GGDP	-3.062893**	-
LATD	-0.535790	-5.554479***
LATF	-5.634625***	-
LATPC	-1.023202	-4.700413***

Note: '***' and '**' denote significance at the 1% and 5% levels respectively.

5.2 Lag length Criteria

Table 2: Lag length Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-155.3692	NA	0.184023	9.658738	9.840133	9.719772
1	-88.06668	114.2103*	0.008291*	6.549496*	7.456470*	6.854665*
2	-81.05045	10.20543	0.014982	7.093966	8.726520	7.643271
3	-64.21619	20.40516	0.016115	7.043405	9.401538	7.836845

Source: Authors' calculation.
  * indicates lag order selected by the criterion.

LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion.

From Table 2, the values of different information criteria for the various lag lengths of VAR models are identified. The results show that all of the criteria like LR, FPE, AIC, SC and the HQ select the first lag as the optimal lag. As lag one is selected as the maximum lag by the entire maximum lag selection criterion, lag one is used for the estimation of the study.

5.3 The Bounds Test

The ARDL bounds test approach studies the long-run co-integration relationship among GGDP, LATD, LATF and LATPC of Bangladesh by using equation (3). The null hypothesis which is tested here is that there is no co-integration (equation (4)) against the alternative hypothesis is that there is co-integration (equation (5)) among the variables. The results of the co-integration of the ARDL bounds tests are shown in (Table 3).

Table 3: Bound Test and Critical Values

F-Bounds Test		Null Hypothesis: No levels of relationship			
Lag length		ARDL(1, 1, 0, 0)			
Test Statistic	Value	Significance	I(0)		I(1)
			Asymptotic: n=1000		
F-statistic	6.528940	10%	2.72		3.77
k	3	5%	3.23		4.35

Actual Sample Size	35		Finite Sample: n=35	
		10%	2.958	4.1
		5%	3.615	4.913

Source: Author's calculations.

Results in (Table 3) show that the calculated F-statistic is greater than the upper bound value at the 5% and 10% levels of significance for the asymptotic (n=1000) sample. (Table 2) also, show that the calculated F-statistic is greater than the upper bound value at the 5% and 10% level of significance for finite Sample (n=35). By rejecting the null hypothesis the results specify a significant co-integrating relationship among the variables. Specifically, over the study period, the results confirm that the GGDP, LATD, LATF and LATPC of Bangladesh have a long-run relationship.

5.4 Long Run Estimation

By applying the ARDL model stated in equation (3), the long-run relationships among the variables are examined. In this ARDL model, the lag structure is selected by Akaike's Information Criterion (AIC). The ARDL (1, 1, 0, 0) model shows the optimal number of lags of each variable. (Table 3) represents the long-run results of this model. The estimated value of R-square is 0.56 which indicates that 56% variation in GGDP has been explained by LATD, LATF and LATPC. The value of F-statistics is 7.309847and the corresponding probability is zero which strongly supports the statistical significance of the model.

Table 4: ARDL Estimations for long run Coefficient for the Period 1985– 2020

ARDL(1, 1, 0, 0)selected based on AIC			
Dependent variable: GGDP			
Constant	LATD	LATF	LATPC
-17.88496	-0.647942	-0.034579	2.267104
(-2.967119)***	(-1.519753)	(0.273051)	(3.845490)***
R-squared = 0.557584			
Adjusted R-squared = 0.481306			
F-statistic = 7.309847***			

Note::Number inside the parenthesis is the value of the t-ratio
'***' denotes significance at the 1% level.

The results of (Table 4) indicate that LATPC is statistically significant in influencing GGDP at the 1% level of significance. The estimated coefficient of LATPC shows that a 1% increase of LATPC will lead to a 0.0227% increase in GGDP in the long run, ceteris paribus. More specifically, there is a long-run positive relationship between air passengers carried and the economic growth of Bangladesh. LATD and LATF have an insignificant effect on the real GDP growth rate, in the long run, ceteris paribus. Moreover, the constant term is also statistically significant in long run.

5.5 Short Run Dynamics

Equation (6) helps to estimate the error correction model (ECM). The ECM is examined to evaluate the short-run dynamic relationship between the aviation sector and economic growth and also to ensure the reliability of the long-term coefficient. (Table 5) represents the results of the estimated ECM.

The results of ECM in (Table 5) show that the estimated value of the error correction term (ECT) coefficient is negative and statistically significant at a 1% level. A highly significant ECT proves a stable long-term relationship (Banerjee, Dolado and Mestre, 1998). Moreover, the negative value of the ECT coefficient indicates that the model is consistent (Makun, 2017). In this study, the value of the estimated ECT coefficient (-0.85) also determines the speed (0.85) of the correction towards an equilibrium relationship. More specifically, the ECT coefficient suggests that the deviation from the long-term GGDP path is corrected by 85% over the following year's aftershock period which implies that the adjustment is very fast. In (Table 5), air transport (registered carrier departures worldwide) is discovered to be statistically negligible for economic growth even at the 10% level, demonstrating that air transport (registered carrier departures worldwide) is not a significant short-term influencer of economic growth. This finding might be explained by the fact that the capacity of the current air transport (registered carrier departures worldwide) infrastructure and service is constrained, and shippers might be slow to raise air freight volumes as the economy expands.

Table 5: ARDL Error Correction Regression

Dependent variable: D(GGDP)	
Regressors	ARDL(1, 1, 0, 0)
C	-17.88496*** (-5.371767)
D(LATD)	1.058169 (1.652077)
ECT(-1)	-0.847356*** (-5.368183)
R-squared	0.496026
Adjusted R-squared	0.464527
F-statistic	15.74765***

Note: The number inside the parenthesis is the value of the t-ratio
'***' denotes significance at the 1% level.

5.6 Diagnostic Testing

Various diagnostic test results for this study are shown in (Table 6). The heteroscedasticity and serial correlation of the residuals are examined in this study using the Breusch-Pagan-Godfrey test and the Breusch-Godfrey Serial Correlation LM test. The P-values are greater than 5% for both tests, indicating that the model is free from the difficulties of serial correlation and heteroscedasticity. This study used the Jarque-Bera test to assess normalcy. The Jarque-Bera test result indicates that the P-value is higher than 5%, which is consistent with the residual's normal distribution.

Table 6: Diagnostic Tests

Test	F-Statistics /Jarque-bera	Obs*R-squared	P-Value
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.5259	2.9097	0.7139
Breusch-Godfrey Serial Correlation LM Test	0.0441	0.0550	0.8145
Normality	1.0099	-	0.6035

Source: Author's calculations.

5.7 Stability Test

To check for the model stability, this study applies the cumulative sum (CUSUM) test and the CUSUM of square test which are represented in (Figure 4) and (Figure 5) respectively.

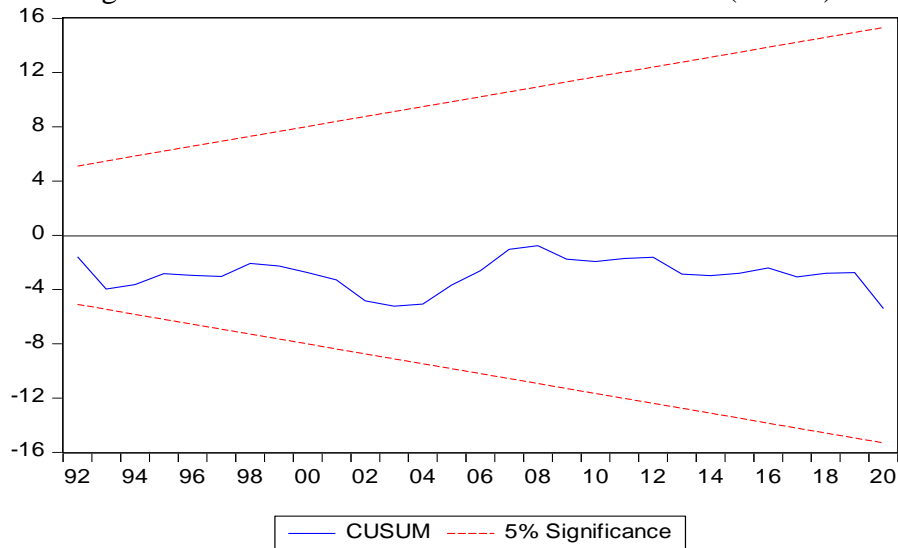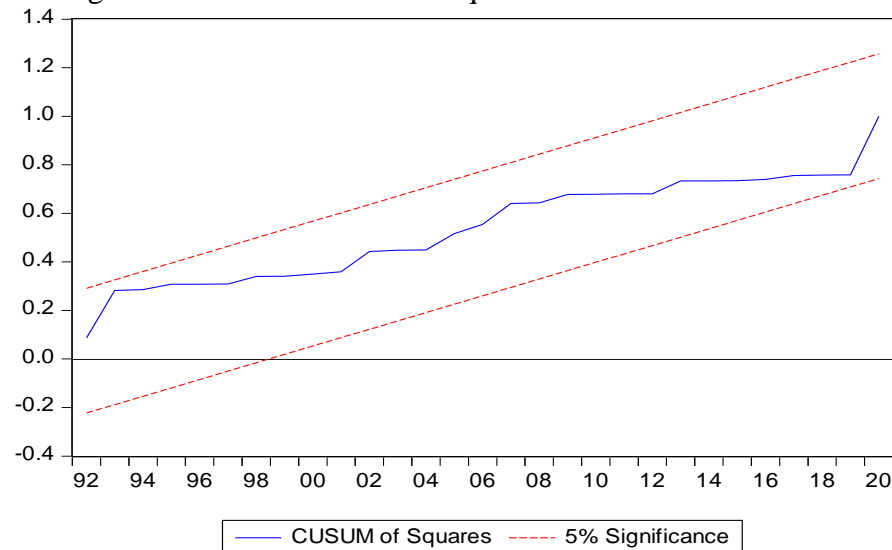Figure 4: Cumulative Sum of Recursive Residuals (GGDP)

Figure 5: Cumulative Sum of Squares of Recursive Residuals

Finally, we employ the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests on the residuals of the error-correction models to confirm that the calculated coefficients are stable over time (Figures 4 and 5). The data demonstrate that the estimated coefficients are generally constant across the sample period; as a result, the ARDL models discussed above are clear and offer reliable conclusions.

6. Discussions

The main purpose of this study is to examine the dynamic relationship between air transport and economic growth in Bangladesh and its policy implications. As a result, the study's findings will be valuable to policy makers at the national level as they establish policies aimed at enhancing economic growth through the implementation of a better air transport plan. The government will concentrate on the various initiatives that will benefit the economy the most.

The study's overall findings are examined using the interest variables' short and long-run dynamics. The study results show that there is a long-run positive relationship between air passengers carried and the economic growth of Bangladesh. This finding indicates that an increase in air passengers carried leads to an increase in the economic growth of Bangladesh in long run. This study justifies the result of the findings of Mukkala and Tervo (2013), Chi and Baek (2013), Brida et al (2016a), Balsalobre-Lorente, Driha, Bekun, and Adedoyin (2020), Brida et al (2016b), Marazoo et al. (2010), Mehmood et al. (2013), Law, Zhang, Gow and Vu (2022), Lögün., Tüzemen, and Karabacak (2018), Zhang and Graham (2020), which shows that the air transport and economic growth are positively related. These findings imply that an increase in air passengers carried leads to an increase in the economic growth of Bangladesh in long run. Moreover, in the long run, both LATD and LATF have an insignificant effect on the real GDP growth rate even at the 10% level. These study findings demonstrate that LATD and LATF are not significant long-term influencers of economic growth. On the other hand, in the short run, air transport (registered carrier departures worldwide) is discovered to be positive but statistically negligible for economic growth even at the 10% level. This result indicates that air transport (registered carrier departures worldwide) is not a significant short-term influencer of economic growth. This result is consistent with that of Law, Zhang, Gow and Vu (2022. These insignificant findings might be explained by the fact that the capacity of the air transport (registered carrier departures worldwide) and air transport, freight (million ton-km) infrastructure and services are constrained, and shippers might be slow to raise air freight volumes as the economy expands.

Major study limitation includes a lack of previous research studies on the issue in Bangladesh. Moreover, for future research, other researchers can expand the work by including alternative variables representing air transport and the nonlinear relationship between the air transport sector and the economic growth of Bangladesh.

7. Conclusion

There has been a significant increase in demand for air transport services over the last few decades, because of the rise in per capita income, exports of labour services, and growth in tourism in Bangladesh (8th Five Year Plan, 2020, p.387). According to International Air Transport Association (IATA)'s prediction, based on current traffic trends, (IATA 2019). The public sector led by the Civil Aviation Authority of Bangladesh (CAAB) mostly provides organized service activities in the aviation sector. The government, in keeping with the vision of the country, envisaged developing Bangladesh as a prime aviation hub which is clearly stated in the vision of the Ministry of Civil Aviation and Tourism (MoCAT, 2015). Hence, committing the government to prosper and with increasing demand for air transport services, the aviation sector in Bangladesh has a good prospect to thrive and contribute to the economy.

The present study was designed to determine the influence of air transport on economic growth in Bangladesh. This study scrutinized the contribution of air transport to the gross domestic product in Bangladesh by using time series data between 1985 and 2020. The most obvious finding to emerge from this study is that over the long term, air transport (passenger carried) has a positive, significant effect on Bangladesh's economic growth. The study has also shown that, in the short term, the effect of air travel (registered airline departures globally) on economic growth is both positive and statistically insignificant. These results imply that focusing on air transport (passenger-carried) might significantly raise the aviation sector's GDP growth share.

In general, therefore, it seems that the results of this study match the government's aspiration to become a prime aviation hub in a high-income economy. Overall, this study strengthens the idea that increasing air transport demand based on several factors would significantly affect the advancement of the economy or supports the economy to become a high-income economy in the long run. The findings of this study have some important implications. First, the study findings confirm that to enhance the competitiveness of the country, it is essential to avoid

constraints in the development of the civil aviation sector. As a result, both domestic and international investments would rise, and economies of scale would develop (Marazzo et al., 2010). Second, this study suggests that through the development of the air transport sector the national economy would be boosted by improving its level of connectivity in the long run. This will open opportunities by way of improving connections within and between enterprises and gaining access to global financing markets. Third, policymakers should also keep in mind that improving air transportation conditions now will affect the GDP in the long run. Fourth, a key policy priority should therefore be to formulate an aviation policy for Bangladesh, which has not been developed yet. This policy could be developed with the technical assistance of international aviation experts. Fifth, as the aviation sector itself is a highly technical sector, the import of technical skills in this area would also be needed for catching up with the aviation leaders of the region and beyond. Sixth, over the last few years, the government has put in place a handful number projects to increase the capacity of passengers and freights. However, the aviation sector is very much connected with the global system and thus strengthening the capacity of CAAB is very much necessary for competing with Bangladesh in the global aviation sector. Seventh, increasing service quality and competitiveness of national flag carrier Biman Bangladesh Airlines as well as supporting and encouraging private airlines is needed to fulfil the growing demand for air transport in Bangladesh. The empirical findings of this paper demonstrate that Bangladeshi air transport policy is a key tool for the socioeconomic development of the nation, and policymakers should take into account the sector's high-income elasticity and its market-multiplying effects.

References

Ahsan, H. M., Eleous, M., Hasan, M. E., Rahman, M. S. and Ahmed, F. (2014). *Increasing Air Traffic Demand and Relevant Issues in Bangladesh*. In: 2nd International Conference on Civil Engineering for Sustainable Development (ICCESD-2014). [online], 14~16 February 2014, KUET, Khulna, Bangladesh. Available at:https://www.academia.edu/9969433/INCREASING_AIR_TRAFFIC_ DEMAND_AND_RELEVANT_ISSUES_IN_BANGLADESH [Accessed 29 Sep. 2022].

Balsalobre-Lorente, D., Driha, O.M., Bekun, F.V. and Adedoyin, F.F. (2021). 'The asymmetric impact of air transport on economic growth in Spain:

fresh evidence from the tourism-led growth hypothesis.' *Current issues in tourism*. 24(4), pp.503-519.

Banerjee, A., Dolado, J. and Mestre, R. (1998).'Error-correction Mechanism Tests for Cointegration in a Single-equation Framework'. *Journal of Time Series Analysis*, [online] 19(3), pp.267–283. Available at: https://econpapers.repec.org/article/blajtsera/v_3a19_3ay_3a1998_3ai_3 a3_3ap_3a267-283.htm [Accessed 27 Sep. 2022].

Banerjee, A., Dolado, J., Galbraith, J. and Hendry, D. (1993). 'Co-integration, Error Correction, and the Econometric Analysis of Non-Stationary Data'. [online] *RePEc - Econpapers*. Available at: https://econpapers.repec.org/bookchap/oxpobooks/9780198288107.htm [Accessed 31 Aug. 2021].

Brida, J.G., Brindis, M.A.R. and Aguirre, S.Z. (2016b). 'Causality between Economic Growth and Air Transport Expansion: Empirical Evidence from Mexico'. *World Review of Intermodal Transportation Research*, 6(1), pp.1-15. doi:10.1504/writr.2016.078136.

Brida, J.G., Bukstein, D. and Zapata-Aguirre, S. (2016a). 'Dynamic Relationship between Air Transport and Economic Growth in Italy: a Time Series Analysis'. *International Journal of Aviation Management*, [online] 3(1), pp.52–67. Available at: https://ideas.repec.org/a/ids/ijavim/v3y2016i1p52-67.html [Accessed: 27 September 2022].

Chang, Y.-H.and Chang, Y.-W. (2009). 'Air Cargo Expansion and Economic Growth: Finding the Empirical Link'. *Journal of Air Transport Management*, [online] 15(5), pp.264–265. Available at: https://ideas.repec.org/a/eee/jaitra/v15y2009i5p264-265.html [Accessed: 27 September 2022].

Chi, J. and Baek, J. (2013).'Dynamic Relationship between Air Transport Demand and Economic Growth in the United States: A New Look'. *Transport Policy*, [online] 29, pp.257–260. doi:10.1016/j.tranpol.2013.03.005.

Fernandes, E. and Pacheco, R.R. (2010).'The Causal Relationship between GDP and Domestic Air Passenger Traffic in Brazil'. *Transportation Planning and Technology*, 33(7), pp.569–581. doi:10.1080/03081060.2010.512217.

Frimpong, J. and Oteng-Abayie, E. (2006). 'Bivariate Causality Analysis between FDI Inflows and Economic Growth in Ghana'. [online] *RePEc - Econpapers*. Available at:

https://econpapers.repec.org/paper/pramprapa/351.htm [Accessed: 27 September 2022].

Ghatak, S. and Siddiki, J. (2001).'The Use of the ARDL Approach in Estimating Virtual Exchange Rates in India5'. *Journal of Applied Statistics*, [online] 28(5), pp.573–583. Available at: https://econpapers.repec.org/article/tafjapsta/v_3a28_3ay_3a2001_3ai_3a5_3ap_3a573-583.htm [Accessed: 27 September 2022].

Hakim, M.M. and Merkert, R. (2016).'The Causal Relationship between Air Transport and Economic Growth: Empirical Evidence from South Asia'. *Journal of Transport Geography*, [online] 56(C), pp.120–127. Available at: https://ideas.repec.org/a/eee/jotrge/v56y2016icp120-127.html [Accessed 27 Sep. 2022].

International Air Transport Association (IATA). (2019).*The Importance of Air Transport to Bangladesh.* Available at: https://www.iata.org/en/iata-repository/publications/economic-reports/bangladesh--value-of-aviation/[Accessed: 29 September 2022].

International Civil Aviation Organization (ICAO). (no date). *Economic Contribution of Civil Aviation*. Available at: https://www.icao.int/sustainability/documents /econcontribution.pdf (Accessed: 29 September 2022).

Khan, M. M. J. and Murad, M. W. (2021). *Contribution of Air Transport Industry to Bangladesh Economy*. Dhaka: The Institute of Chartered Accountants of Bangladesh Publication. [online] Available at: https://www.icab.org.bd/publication/news/5/210/Contribution-of-Air-Transport-Industry-to-Bangladesh-Economy.

Law, C.C., Zhang, Y., Gow, J. and Vu, X.B. (2022). 'Dynamic relationship between air transport, economic growth and inbound tourism in Cambodia, Laos, Myanmar and Vietnam'. *Journal of Air Transport Management*, 98, pp.102-161.

Lögün, A., Tüzemen, A. and Karabacak, A.G.E. (2018). 'Investigation of Relationship Between Air Transport and Economic Growth'. In IV. International Caucasus-Central Asia Foreign Trade and Logistics Congress, pp. 362-368.

Makun, K. (2017). 'Trade Openness and Economic Growth in Malaysia'. *Foreign Trade Review*, 52(3), pp.157–170.doi:10.1177/0015732516663317.

Marazzo, M., Scherre, R. and Fernandes, E. (2010).'Air Transport Demand and Economic Growth in Brazil: A Time Series Analysis'. *Transportation Research Part E: Logistics and Transportation Review*, 46(2), pp.261–269. doi:10.1016/j.tre.2009.08.008.

Mehmood, B., Shahid, A. and Younas, Z.I. (2013).'Interdependencies between Aviation Demand and Economic Growth in India: Cointegration Equation Estimation'. *Economic Affairs*, 58(4), p.337. doi:10.5958/j.0976-4666.58.4.017.

Ministry of Civil Aviation and Tourism (MoCAT).(2015) Vision of Ministry of Civil Aviation and Tourism. Available at: https://mocat.gov.bd/site/page/a39fd719-20a2-40b3-a41b-419c0a5a5a11/Vision/[Accessed: 29 September 2022].

Mukkala, K. and Tervo, H. (2013).'Air Transportation and Regional Growth: Which Way Does the Causality Run?' *Environment and Planning A: Economy and Space*, 45(6), pp.1508–1520. doi:10.1068/a45298.

Pesaran, M.H., Shin, Y. and Smith, R.J. (2000). 'Structural Analysis of Vector Error Correction Models with Exogenous I(1) Variables'. *Journal of Econometrics*, [online] 97(2), pp.293–343. Available at: https://ideas.repec.org/a/eee/econom/v97y2000i2p293-343.html [Accessed: 29 September 2022].

Pesaran, M.H., Shin, Y. and Smith, R.J. (2001).'Bounds Testing Approaches to the Analysis of Level Relationships'. *Journal of Applied Econometrics*, 16(3), pp.289–326. doi:10.1002/jae.616.

Sultana, S. (2018).'Economic Growth of Airlines Industry: An Overview of Domestic Airlines in Bangladesh'. *Journal of Management Research and Analysis*, [online] 5(1), pp.61-68. doi:10.18231/2394-2770.2018.0012.

Toda, H.Y. and Phillips, P.C.B. (1993).'Vector Autoregressions and Causality'. *Econometrica*, 61(6), pp.1367-1393.doi:10.2307/2951647.

Zhang, F. and Graham, D.J. (2020). Air transport and economic growth: a review of the impact mechanism and causal relationships. Transport Reviews, 40(4), pp.506-528.

8th Five Year Plan: FY 2021 - FY 2025: promoting prosperity and fostering inclusiveness. (2020). Dhaka: General Economics Division (GED), Bangladesh Planning Commission, Government of the People's Republic of Bangladesh.

Barriers to Adoption of e-Governance in the Digital Transformative Era: The Mediating Role of Voluntariness towards Sustainability in Bangladesh

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Abstract

The purpose of this study is to assess the influence of various barriers on the public sector's intention to implement e-Governance in Bangladesh. To collect data, a survey of respondents working in the public sector was conducted in Dhaka, Bangladesh. Data from 366 respondents were analysed in this study to test seven hypotheses. SmartPLS 3.3.9 was used to run the hypothesis tests. Findings imply that administrative issues, technical issues, cultural issues, and voluntariness with intention to adopt e-Governance interact positively and significantly. The results also confirm that voluntariness mediates the connection between technical issues and intention to adopt e-Governance. No conventional associations were found between administrative issues and cultural issues with the mediating effect of voluntariness. The most significant findings are useful for legislators and policymakers in addressing the challenges of e-Governance adaptation in the public sector. It was emphasized the flexibility of e-Governance in the public sector and provided a methodical study of the strategies used to engage employees in the e-Governance process and involve them in the overall decision-making of the public sector in order to enhance information and service delivery. This study also gives the opportunity for the highest level of accountability in public sectors with the implementation of e-Governance. It was also provided specific instructions for the most effective and successful usage of e-Governance.

Keywords: e-Governance, public sectors, challenges, survey, SEM, Bangladesh

1.0 Introduction

In recent years, *e-Governance* has emerged as a key mechanism for the implementation of a sustainable governance system in the digital *transformative* era (Batool *et al.* 2021). Throughout the world, there has been a paradigm change

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in how governments and other independent lawmakers view e-Government as a fundamental tool for responsible governance (Bores, 2016; Sharma *et al.*, 2021). Electronic governance, often known as e-government, is the use of computer software to connect with the country's people in order to improve service quality. Digitalization's opportunities are altering the planet. ICT may aid in the development of e-Government, which powers the day-to-day activities of public sector organizations. e-Governance is the use of information and communication technologies (ICTs) to offer government services through the integration of different stand-alone systems between Government-to-Citizen (G2C), Government-to-Business (G2B), and Government-to-Government (G2G) services. It frequently has connections to interactions and back office operations throughout the full administrative structure of government. Government services are made easily, quickly, and transparently available to the public through e-Government (Burlacu *et al.*, 2019; Thabit and Jasim, 2019; Sharma *et al.*, 2021). Along with technological advancements and the expansion in the information technology industries, governments have lately started utilizing creative techniques in the higher education sectors to engage with citizens through simple applications (Nagaraja, 2016; Batool *et al.*, 2021).Since the industrial revolution, the public sector has been the main engine of economic growth. In the industrialized economies, the public sector now faces new problems as a result of globalization. It indicates that the government engages in a variety of economic, industrial, and commercial operations. The use of Information and Communication Technologies (ICTs) by government agencies to offer services electronically is known as "e-Governance," a new topic of research in the discipline of Information Systems. Around the world, public sector and government organizations are reforming their public administration organizations to provide their stakeholders with better information and services that are more efficient and cost-effective (Sarker *et al.*, 2018; Ullah *et al.*, 2021).

Bangladesh's public sector has long wielded enormous power over the country's economy. Prior to independence, the public sector consisted of only the railways, the post office, and industries that produced ordinary components. However, Bangabandhu Sheikh Mujibur Rahman, an independent Bangladesh's visionary leader and father of the nation, devised a development plan for the public sector as a tool for independent economic growth. The public sector has been essential to the country's economic prosperity (Baroi and Alam, 2021). It is seen as a powerful economic development stimulant and a critical tool for independence. The fundamental purpose of the public sector in economic growth is to fill shortages in capital goods, generate jobs, balance regional development, and

contribute to the public exchequer (Ahmed, 2018). Aside from that, several state-owned enterprises have made major contributions to promoting Bangladesh's export.

Looking at the importance of the role of public sector in the growth of a country it is extremely important that the governance in these sectors must be SMART (Simple, Moral, Accountable, Responsive and Transparent), so that the objectives of public sector may be realized (Kumar, 2015). The beneficiaries of SMART governance include people, corporations, employees, and other stakeholders in society. Moreover, e-Governance as a discipline has evolved in last one decade and is broadly classified into Government to Citizens (G2C), Government to Businesses (G2B), Government to Government (G2G) and Government to Employees (Oliveira *et al.*, 2020).

Furthermore, e-Governance entails new leadership philosophies, means of discussing and choosing investment and policy, ways of getting access to education, ways of listening to the public, and new ways of organizing and providing information and services (Alotaibi, 2018). It is defined as the application of information and communication technologies to transform the efficiency, effectiveness, transparency and accountability of informational and transactional exchanges within government, between government and government agencies of national, state, municipal and local levels, citizen and businesses, and to empower citizens through access and use of information. In other words e-Governance is the implementation and delivery of government services using the information communication technology to provide transparent, effective, efficient, responsive and accountable governance to the society (Das and Misra, 2017; Sharma and Kalra, 2017; Suleimany, 2021).

This study focuses on identifying the issues that are impeding adoption of e-Governance in Bangladesh. The point of the study is to outline the problems and barriers with e-Governance adaptability in Bangladesh and to evaluate how e-readiness affects e-Governance adaptability in public sector organizations. Our study's objectives and model are supported by the agency theory and stakeholder theory assumptions. The parts that follow focus on the linked literature, the conceptual framework, the data collection techniques employed, and the statistical analysis using SEM based covariance. The paper finishes with a thorough analysis of the outcomes and implications.

2.0 Literature Review

2.1 Concept of E-Governance

The concept of *"e-Governance"* has gained popularity in recent years. It is widely recognized that governments that adopt e-Governance provide better results than traditional governance methods, such as outdate hierarchical processes dependent on paper, which deny the general people access to government. Furthermore, e-Governance was developed to improve efficiency and public awareness (Anand and Khemchandani, 2019; Oliveira *et al.*, 2020). The main issue is that in developing nations with very low literacy rates and subpar infrastructures, the people are ready to engage electronically with governmental authorities. This is true for the majority of established countries and a few rising ones (Ghorbanizadeh and Elyasi, 2016; Grigalashvili, 2022). Furthermore, e-Government is important in addressing issues with inefficiency (Abasilim and Edet, 2015). One of the most important tools for creativity in the public sector, especially in the public sectors, is e-Governance. E-Governance, sometimes referred to as "electronic governance," is how the public sector uses ICTs (Kerikmäe *et al.*, 2019). E-main government has set a goal is to "engage, enable and empower citizens," and it may be defined as "the public sector's use of ICT to enhance information and service provision, encourage citizen engagement in decision-making, and make government more responsible, transparent, and effective" (Adeodato and Pournouri, 2020).

2.2 Creating an efficient implementation strategy for e-Governance

In order to improve the provision of government services and citizen participation, e-Governance refers to the transformation of relationships between the internal and external public sectors through Information and Communications Technology (ICT). A community or organization that has adopted and integrated digital technology into daily life at home, at work, and during leisure is referred to as a "digital society" (Adeodato and Pournouri, 2020; Suri, 2022). Most importantly, e-Governance is the process of creating, putting into effect, and enforcing the laws, rules, and regulations required to enable the operation of the Knowledge Society and the e-Governance. In order to accomplish its aims and objectives and provide organized services to all stakeholders, Bangladesh has made significant strides in the usage of ICT. To run their businesses efficiently the majority of large international organizations in Bangladesh use modern computer systems. To

support their commercial operations, a number of large firms have spent vast sums of money for establishing information infrastructure (Sarker *et al.*, 2018; Giri, 2019).

e-Governance is currently considered a high priority in Bangladesh since it is seen to be the only method to introduce IT to the "Common Public" (Islam *et al.,* 2017). Facilities for e-Governance in Bangladesh are considered in a standard format that demands simple access and use and is thematically categorized. Residents can download and utilize a variety of forms related to amenities (Kumar, 2015). Additionally, there are online services available for public institutions like e-policing, e-gp, e-learn, etc. e-Governance by Bangladesh includes a wide range of services, such as relevant rules, laws, regulations, licenses, and government business help that are related to various stages of the company life cycle, such as starting, running, improving, and ending a firm. Bangladesh now offers online services for company registration, import and export, value added tax, and investment in Bangladesh (Bala and Verma, 2018). However, prior research shows that administrative, technological, and cultural issues hinder outcome benefits from being implemented to the full extent that would be expected.

2.3 Obstacles to e-Governance

There are few research on e-Governance performance (Pereira *et al.,* 2017; Khan *et al.,* 2020), but even fewer on e-Governance barriers (Tang *et al.*, 2019; Singh, 2019). Barriers to e-Governance have been divided into three categories: levels, regions, and modalities (Afrizal and Wallang, 2021). Starting the e-Governance efforts is the initial step. This notion may now be impeded by a number of users who see a lot of impediments (Haider *et al.*, 2016). The second method resulted in the creation of this definition. Organizational resources are limited, hence organizational and political boundaries must be established (Abdelkader, 2015). The concept was chosen so that it could be tested on a small scale in order to check its viability. Constraints on the technical and institutional levels will be crucial in this process. The strategy is chosen during the implementation phase, and the idea of electronic governance must be supported (Zoroja *et al.*, 2020).

Furthermore, now that the concept has been created and verified, it must be extended to a real-world setting. Again, in this scenario, the amount of coordination, the availability of facilities, and the acceptability of individuals may all pose challenges to the attempt (Farida *et al.*, 2020). The second barrier to innovation may be found in a variety of settings, most notably in human and

governmental barriers. In the case of the first barrier, the 'digital gap,' or the inequality in the resources available to get the abilities required to understand the technology, is referred to as a big barrier. Second, if people lack trust in government in any manner, connecting them to e-Governance via digital techniques is extremely difficult (Garad and Qamari, 2021). Potential barriers include a lack of technical experience, budgetary constraints on available resources, and a lack of management and political support (Putra *et al.*, 2018).

Finally, administrative and structural barriers to e-Governance may exist. Structured impediments to e-Governance have long been a source of worry. The cultural component is also important. These ideals, which reject all forms of scientific advances but do not publicly oppose them, have presented themselves in a variety of ways in organizations (Al-Refaie and Ramadna, 2020). Both of these hurdles must be overcome in order to implement the fundamental aim of electronic governance. Before developing and implementing an electronic governance plan, all challenges should be identified, as people are opposed to change and may be its greatest impediment (Brimkulov and Baryktabasov, 2018).

2.4 Eliminating obstacles to e-governance

To overcome the barriers to e-Governance, a pretty close approach can be designed. To provide the interveners a sense of the intervention's long-term efficacy and viability, it should be calculated after the intervention and the amount of usages increased after the intervention. It must be evaluated after the intervention (Meiyanti *et al.*, 2018). Partners may succeed if e-Governance programs continue to emphasize rewards since several studies have demonstrated a positive relationship between achievement and incentives (Arwati and Latif, 2019). Additionally, organizations may choose to accept the concept of "chaotic coordination," allowing them to maintain their current procedures while undergoing facelifts to make this public innovation more effective (Elgohary and Abdelazyz, 2020). Then, by involving people and providing those with respectable electronic access at a low cost or for free, systemic barriers to pubs progress may be minimized (Ionescu, 2016). Institutional barriers will be removed if the government is prepared to reassure the public of the benefits of electronic media and provide them with connectivity, much like politicians have done (Alqudah and Muradkhanli, 2021).

2.5 Hypotheses Development

Based on the aforementioned literatures, a model for e-Governance implementation in Bangladesh is to be provided in order to investigate the obstacles that limit the adoption of e-Governance in Bangladeshi public sectors. The following hypotheses are examined:

H1: There is a positive and significant association between administrative issues and intention to adopt e-Governance in the public sectors.

H2: There is a positive and significant association between technical issues and intention to adopt e-Governance in the public sectors.

H3: There is a positive and significant association between cultural issues and intention to adopt e-Governance in the public sectors.

H4: There is a positive and significant association between voluntariness and intention to adopt e-Governance in the public sectors.

H5: Voluntariness mediates the association between administrative issues and intention to adopt e-Governance in the public sectors.

H6: Voluntariness mediates the association between technical issues and intention to adopt e-Governance in the public sectors.

H7: Voluntariness mediates the association between cultural issues and intention to adopt e-Governance in the public sectors.
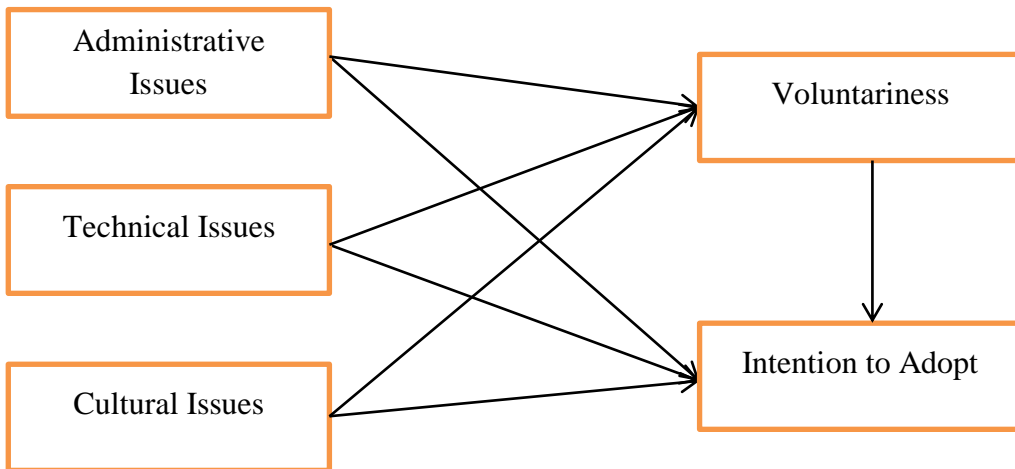

Figure 1: The Framework of the study

3.0 Methodology of the study

3.1 Research Design and Data Collection

The data for the study came from the working population in Dhaka, Bangladesh's public sectors. A sample of 366 respondents was obtained using the stratified random sampling approach. A deliberate effort was made to include respondents of various genders, ages, marital statuses, levels of education, length of job experience, daily device usage, and computer skill. These elements were used to establish the demographics of the respondents. The cross-sectional design of this study has a quantitative dimension. Researchers used the survey approach to collect data for further positivist studies. Initially, 500 people received the questionnaires. However, only 366 were fully completed and useable, yielding a response rate of 73.20 per cent. The questionnaire served as the primary technique which consists of twenty-seven. Gender, age, married status, education level, job experience, daily used device, and computer skill were the first seven questions used to test the indicated control factors. The next twenty questions were used to assess the independent variables, mediator and dependent variable. Twenty questions are used as the measurement items for the five-point Likert scale (1-20, Section B). Smart PLS 3.3.9 software (statistical tools) was used to analyse the data for getting the study outputs.

3.2 Measurement

The demographics of the respondents, as well as the independent and dependent variables are the two components of the instrument. All items have a response option ranging from 1 for strongly disagree to 5 for highly agree. The measurement range was a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agreed). Four items were used to assess administrative issues adopted from Magjuka *et al.* (2005). Additionally, four items were used to evaluate technical issues adopted from Delopoulos (2010). Then, four items were used to evaluate cultural issues adopted from Ebrahim and Irani (2005). Four more items were utilized to measure voluntariness adopted from Behl *et al.* (2019). Finally, four items were used to measure intention to adopt from Behl *et al.* (2019).

4.0 Findings and Discussion

4.1 Respondents' Profile

Table 1 presents the respondents' demographic info. As seen in Table 1, 72.68% of respondents were men, 39.62% were between the ages of 30 and 33, 70.49% were married, 45.63% had postgraduate degrees, 45.63% had 5 to 9 years of work experience, 33.61% most used Desktop daily and 51.37% had beginner computer skill.

Table 1: Respondent's Demographic Profile

Characteristics	Frequency	Percentage	Characteristics	Frequency	Percentage
Gender			*Working Experience*		
Male	266	72.68	Less than 5 Years	123	33.61
Female	100	27.322	5-9 Years	167	45.63
Age			10-13 Years	28	7.65
22-25 Years	11	3	14-17 Years	32	8.74
26-29 Years	45	12.3	More than 17 Years	16	4.37
30-33Years	145	39.62	*Daily Used Device*		
34-37 Years	98	26.78	Smart phone	77	21.04
38 Years or above	67	18.31	Tablet	43	11.75
Marital Status			Desktop	123	33.61
Single	99	27.05	Laptop	111	30.33
Married	258	70.49	Others	12	3.28
Divorced	9	2.46	*Computer Skill*		
Education Level			Beginner	188	51.37
HSC or below	35	9.56	Intermediate	134	36.61
Under Graduate	155	42.35	Advance	41	11.2
Post Graduate	167	45.63	Others	3	0.81
Others	9	2.46			
Total-366					

4.2 Measurement, Validity and Reliability

Table 2 shows the measurement, validity and reliability of study. The proposed model was tested using a two-step technique. First, researchers looked at the study's validity and reliability. Bootstrapping was employed in the second step to evaluate the significance of the structural path. SmartPLS 3.3.9 was used to perform each test for the study. The general rule proposed by Vinzi *et al.* (2010) is that the outside loadings can be 0.50 and higher. According to Table 2, the outside loadings of this study are greater than 0.50. The composite reliability and the AVE test scores were also found to be higher than the standard values of (0.70) and (0.50), which is a reliable indicator (Hair *et al.*, 2014). Cronbach's alpha should be 0.70 or higher in value. Cronbach's alpha is larger than 0.70, as seen in Table 2 (Hair *et al.*, 2014). Table 2 shows the voluntariness might affect exogenous factors in medium range (0.228 or 22.8 per cent). The intention to adopt e-Governance may also be highly influenced by exogenous factors in large range (0.355 or 35.5 per cent). Above all, measurement, validity and reliability of the model are good in nature.

Table 2: Measurement of Model Assessment

Constructs	Items	Loading	AVE	CR	Alpha	R-Square
Administrative Issues	AI1	0.849				
	AI2	0.799	0.644	0.878	0.818	
	AI3	0.705				
	AI4	0.849				
Technical Issues	TI1	0.700				
	TI2	0.744	0.519	0.811	0.701	
	TI3	0.758				
	TI4	0.681				
Cultural Issues	CI1	0.787				
	CI2	0.705	0.517	0.81	0.708	
	CI3	0.718				
	CI4	0.659				
Voluntariness	V1	0.812				
	V2	0.693	0.637	0.875	0.808	0.228
	V3	0.817				
	V4	0.861				

Intention to Adopt	IA1	0.655				0.355
	IA2	0.820	0.561	0.835	0.734	
	IA3	0.807				
	IA4	0.701				

Table 3: Values of the Stone Geisser indicator (Q^2) and Cohen's indicator (f^2) of the model in the SEM

Variables	**Q^2**	Intention to Adopt **(f^2)**	Voluntariness **(f^2)**
Administrative Issues	0.432	0.086	0.053
Cultural Issues	0.346	0.045	0.034
Intention to Adopt	0.443		
Technical Issues	0.576	0.061	0.079
Voluntariness	0.345	0.071	

Large effect> 0.34; Medium effect > 0.14; Small effect > 0.01 (Cohen, 1988)

Table 3 shows that Q^2 values are greater than zero, indicating that the model's predictive significance remains (Chin, 1998). According to the effect sizes (f^2), administrative, cultural, technical issues, and voluntariness have a minor impact on intention to adopt (f^2). Furthermore, administrative, cultural, and technological issues have a minor impact on voluntariness. Overall, the model has a high level of predictive relevance and appropriate fitness.

4.3 Discriminant validity

4.3.1 Fornell-Larcker criterion Analysis
Table 4: Fornell-Larcker criterion Analysis for discriminant validity

		1	2	3	4	5
1	Administrative Issues	0.803				
2	Cultural Issues	0.039	0.719			
3	Intention to Adopt	0.388	0.311	0.749		
4	Technical Issues	0.251	0.492	0.464	0.720	
5	Voluntariness	0.291	0.298	0.452	0.419	0.798

*The diagonal are the square root of the AVE (in bold) of the latent variables and indicates the highest in any column or raw

Note: LV- Latent Variable

Table 4 shows the estimated correlations in the principal diagonal of the SEM between the LV (Latent Variables) and the AVE square roots. Strong discriminant validity is revealed by the evaluation of the Fornell-Larcker (1981) criterion, which is consistent with the square root of the AVE (bolded), which is higher than the correlations between the variables and ranges from 0.719 to 0.803. In this way, the discriminant validity of the estimated research model is supported and recognized across variables.

4.3.2 Heterotrait-Monotrait (HTMT) criterion Analysis

Table 5: The heterotrait-monotrait (HTMT) analysis for discriminant validity

		1	2	3	4	5
1	Administrative Issues					
2	Cultural Issues	0.249				
3	Intention to Adopt	0.497	0.396			
4	Technical Issues	0.318	0.663	0.638		
5	Voluntariness	0.351	0.365	0.584	0.551	

*Discriminant validity exists if the HTMT<0.85 (Henseler *et al.*, 2005).

The heterotrait-monotrait (HTMT) analysis for discriminant validity is displayed in Table 5. Additionally, the discriminant validity cross-validation revealed that the HTMT values are below 0.85 (Henseler *et al.*, 2005). This demonstrates that the dataset has no discrimination issues.
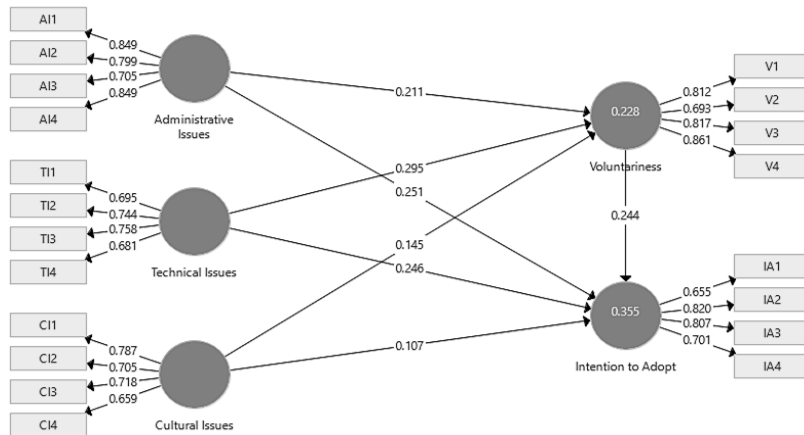
4.4 Structural Model Assessment

Figure 2: Standardized results of SEM calculations

The structural model must also be evaluated as part of the validation procedure. Additionally, t-values and R^2 values were computed using the bootstrapping method with 4,999 resamples. The standardized findings are shown in Figure 2. The outside loads of all items often exceeded the standard. The majority of variables have very good direction coefficients.

4.5 Hypotheses Testing (Direct and Indirect Relationships)

Table 6: Result of Direct and Indirect Effect Hypotheses

Hypotheses	Relationship	Std Beta	Std Error	t-value	p-value	Decision
H1	Administrative Issues → Intention to Adopt	0.250	0.097	2.593	0.010	Supported
H2	Technical Issues → Intention to Adopt	0.249	0.124	0.198	0.047	Supported
H3	Cultural Issues → Intention to Adopt	0.125	0.123	1.965	0.049	Supported
H4	Voluntariness → Intention to Adopt	0.227	0.096	2.542	0.011	Supported
H5	Administrative Issues → Voluntariness → IA	0.051	0.041	1.277	0.202	Rejected
H6	Technical Issues → Voluntariness → IA	0.066	0.037	1.967	0.050	Supported
H7	Cultural Issues → Voluntariness → IA	0.037	0.030	1.187	0.236	Rejected

IA: Intention to Adopt

Table 6 presents the findings of the direct and indirect effect hypotheses of the study. PLS bootstrapping was utilized to determine the statistical t-values. The p-value, which was calculated using a 95% confidence range, is an appropriate level for social science study (Bickel *et al.*, 2012). Firstly, it was assumed that there is a positive and significant association between technical issues and intention to adopt e-Governance in the public sectors. In line with assumption, a positive and significant association is found between administrative issues and intention to adopt e-Governance ($\beta = 0.250$, t = 2.593, p < 0.05, see Table 6), which confirms Hypothesis 1. This hypothesis is supported by the studies of Nkohkwo and Islam (2013) and Choi *et al.* (2016). After that, it was assumed that there is a positive and significant association between cultural issues and intention to adopt e-Governance in the public sectors. In line with assumption, a positive and significant connection is found between technical issues and intention to adopt e-Governance ($\beta = 0.249$, t = 0.198, p < 0.05, see Table 6), which confirms Hypothesis 2. This hypothesis is supported by the studies of Barua (2012) and Kanaan *et al.* (2019). Also, after that, it was assumed that there is a positive and significant association between voluntariness and intention to adopt e-Governance

in the public sectors. In line with assumption, a positive and significant connection is found between cultural issues and intention to adopt e-Governance ($\beta = 0.125$, t = 0.1965, p < 0.05, see Table 6), which confirms Hypothesis 3. This hypothesis is supported by the studies of Ebrahim and Irani (2005), and Mishra and Sharma (2013). In the fourth hypothesis, it was assumed that there is a positive and significant association between voluntariness and intention to adopt e-Governance. A positive and significant association is found between voluntariness and intention to adopt e-Governance in the public sectors ($\beta = 0.227$, t = 1.965, p < 0.05, see Table 6), which confirms hypothesis 4. The study of Behl *et al.* (2019) supports the hypothesis 4.

Furthermore, in the fifth hypothesis, voluntariness mediates the association between administrative issues and intention to adopt e-Governance in the public sectors. Hypothesis 5 is not supported by the finding that voluntariness mediates the association between administrative issues and the intention to adopt e-Governance ($\beta = 0.051$, t=1.277, p > 0.05, see Table 6). Then, in the sixth hypothesis, voluntariness mediates the association between technical issues and intention to adopt e-Governance in the public sectors. Hypothesis 6 is supported by the finding that voluntariness mediates the association between technical issues and the intention to adopt e-Governance ($\beta = 0.066$, t= 1.967, p < 0.05, see Table 6). In the final hypothesis, voluntariness mediates the association between cultural issues and intention to adopt e-Governance in the public sectors. Hypothesis 7 is not supported by the finding that voluntariness mediates the association between cultural issues and the intention to adopt e-Governance ($\beta = 0.037$, t= 1.187, p > 0.05, see Table 6).

5.0 Conclusion

This study builds a model of e-Governance adaptation that investigates the factors that prevent the public sector from modifying the EG model based on the notions of new e-Governance. On the basis of data collected from 366 participants during the testing of the model and the hypotheses, structural equation modeling with SmartPLS 3.3.9 has been conducted. Following the CFA, a structural model was developed, and the study's findings demonstrated that administrative, technical, and cultural issues are significantly connected to how adaptive e-Governance is. These issues hinder Bangladesh from implementing e-Governance. Governments are seeking to boost the responsiveness and accessibility of the public sector by leveraging a number of IT technologies. During this era of digitalization, big data,

and data mining, various ground-breaking initiatives are being made to advance and enhance the e-Governance system. Reforms in developing countries like Bangladesh fail to achieve their intended aims because they are inadequately, meaning that essential components or prerequisites are either missing from the situation or are not in place (Waseem *et al.,* 2016).

In this study, seven hypotheses were developed. The first, second, third and fourth direct hypotheses all support the assumptions that there is a positive and significant association between the administrative, technical, and cultural issues with intention to adopt e-Governance. Nowadays, the well-being of any society is heavily reliant on effective and efficient e-Governance. The act of exercising control or authority; the political, economic, administrative, or other ways of managing a government's resources and activities are all instances of governance. People and organizations require structures, procedures, and organizations to express their requirements, assert their legal rights, fulfil their commitments, and settle problems. Contributing to the operations of the public sector, which rely on accountability and transparency, is the core approach for effective and efficient governance.

While successful global development may be improved, developing-country governments can also be strengthened via good governance. Good governance would help strengthen law and justice, economic and financial management, public service productivity, and civil society growth in particular. A component of good governance is an economy that is necessary for sustainable growth and operates in a morally upright, open, and well-governed setting that promotes competition in the market. There wouldn't be any forces promoting global wealth and sustainable development without excellent governance. A thriving business community, operating in a healthy, competitive business climate, generates employment and wages, boosts profits, and ensures that services are used efficiently. Studies have also shown that if governance is excellent, investors tend to stay and increase their asset values. Everyone in company is aware that before entering a new market, clients want to know the rules. They should be able to rely on these laws of law with ease. They wish to predict their expenses and manage their risks in line with that. Most importantly, people like to believe that the laws—whether they are obligations imposed by the contract or by the Legislature—will be obeyed.

Furthermore, public sectors develop internal aims and plans to achieve their goals as one of the ways they hope to adapt to (and hence survive) the unpredictability

of their external environment. A strategic plan is "a conscious process by which an organization assesses its current state and potential future external circumstances, defines potential future solutions for itself, and then establishes operational strategies, policies, and procedures for choosing and shifting to one or more of them," according to one definition (Meijer, 2015). A review or conceptualization of the organization's purpose or aim, a succinct declaration of its aspirational, usually inspirational, and frequently starting point for strategic planning, is common. Management competence refers to a person's capacity to acquire technical expertise and qualifications, including experience, frequently in relation to the tasks, responsibilities, duties, skills, abilities, or personal characteristics of a person, underpinning him or her to be able to show good work performance in the field of work, particular roles, and circumstances, and to be discussed and exchanged with individuals in a careful way.

Most importantly, one of the key factors affecting the information system's efficient operation is technology. Organizations that lack appropriate and sufficient technology frequently struggle to generate, integrate, and evaluate the products or services they provide. However, Ittner (2003)'s research shows that organizations with better information systems would be better equipped to adopt corporate governance systems due to reduced governance costs than organizations with poorer information systems. One of the key factors affecting how well the information system works is technology. Organizations with inadequate technology will frequently struggle to generate, integrate, and evaluate the products or services that have been produced. As Ittner (2003) has shown, organizations with higher-quality information systems would be better equipped to adopt corporate governance systems than organizations with inferior information systems due to lower governance costs. The evolution of organizational governance systems is negatively impacted by the flaws in corporate information systems, claims Ittner (2003).

6.0 Implications of the study

The current study provides some practical implications for practitioners, particularly for government departments and administrative divisions, to take into account the crucial issues related to adopt e-Governance practices and its channels. To obtain and keep the public's trust, governments should improve their social cohesiveness with the citizens. Governments may be able to maintain public confidence in government by effective and efficient administrative,

technological, and cultural necessary information to the public, especially in emergencies (Hartanto *et al.,* 2021). By enabling governments to operate wisely and increasing citizens' trust in local government, e-Governance expands the potential for economic and social capital. To ensure the timely delivery of important information to the public and to foster the process of achieving the highest level of public trust in local government in the best interest of the national government and for a sustained economy, it is essential to develop strategies at all levels of administration along with the provision of accountable, responsive, and transparent e-Governance platforms (Hartanto *et al.,* 2021).

The study's insights may also be applied to the post COVID-19 period, when officials and agencies can continue to uphold the state's efficient operation through the implementation of e-Governance procedures. Citizens believe and trust their governments when they are responsive and open, and as a consequence, they carry out their tasks in an honest and just manner, creating the perfect society. In conclusion, the current study makes a theoretical and empirical contribution to the body of knowledge by fusing administrative issues, technological issues, cultural issues, and voluntariness with purpose to embrace e-Governance in a growing Bangladeshi cultural setting.

7.0 Limitations and Future Directions

This study, like other studies, has limitations. Due to the lack of study on the e-Governance aspects, there is little work and literature on the relationships between challenges and intention to adopt e-Governance. To quantify the digital divide, a rural sample may provide a more complete picture. Additionally, the sample can be drawn only from metropolitan regions for comparing from each other, and a cross-cultural evaluation of this paradigm's efficacy is possible. Finally, it will be feasible to research technological challenges associated to e-Governance or the capabilities of State institutions in order to successfully implement the e-Governance model. Future studies may employ a longitudinal approach rather than the cross-sectional one adopted in this study. Future study might examine how successfully government entities can implement e-Governance. Furthermore, studies might test the proposed approach in industrialized countries to discover if it is possible. The commercial sector may investigate how flexible e-Governance is in the near future. There are several comparison studies that may be conducted between two or more countries.

References

Abasilim, U.D. and Edet, L.I., 2015. E-Governance and its implementation challenges in the Nigerian public service. *Acta Universitatis Danubius. Administratio*, *7*(1).

Abdelkader, A., 2015. A manifest of barriers to successful e-Governance: cases from the Egyptian programme. *International Journal of Business and Social Science*, *6*(1), pp.169-186.

Adeodato, R. and Pournouri, S., 2020. Secure implementation of e-Governance: A case study about estonia. In *Cyber Defence in the Age of AI, Smart Societies and Augmented Humanity* (pp. 397-429). Springer, Cham.

Afrizal, D. and Wallang, M., 2021. Attitude on intention to use e-Governance in Indonesia. *Indonesian Journal of Electrical Engineering and Computer Science*, *22*(1), pp.435-441.

Ahmed, B., 2018. The Linkage Between E-Governance and Good Governance: An Analysis on Bangladesh Public Administration. *Humanities and Social Sciences*, *6*.

Alotaibi, S.S., 2018. Registration center based user authentication scheme for smart E-Governance applications in smart cities. *IEEE Access*, *7*, pp.5819-5833.

Al-Refaie, A. and Ramadna, A.M., 2020. Barriers to e-Governance Adoption in Jordanian Organizations from Users' and Employees' Perspectives. In *Open Government: Concepts, Methodologies, Tools, and Applications* (pp. 2190-2210). IGI Global.

Alqudah, M.A. and Muradkhanli, L., 2021. Electronic Management and Its Role in Developing the Performance of E-government in Jordan. *Electronic Research Journal of Engineering, Computer and Applied Sciences*, *3*, pp.65-82.

Anand, D. and Khemchandani, V., 2019. Study of e-Governance in India: a survey. *International Journal of Electronic Security and Digital Forensics*, *11*(2), pp.119-144.

Arwati, D. and Latif, D.V., 2019. Public Trust and Financial Transparency of e-Governance implementation in Bandung City. *Journal of Economics, Business, and Government Challenges*, *2*(2), pp.136-143.

Bala, M. and Verma, D., 2018. Governance to good governance through e-Governance: A critical review of concept, model, initiatives & challenges in India. *International Journal of Management, IT and Engineering*, *8*(10), pp.244-269.

Batool, S., Gill, S.A., Javaid, S. and Khan, A.J., 2021. Good Governance via e-Governance: Moving towards Digitalization for a Digital Economy. *Review of Applied Management and Social Sciences*, *4*(4), pp.823-836.

Baroi, H.S. and Alam, S., 2021. Operationalizing the Right to Information Act through e-Governance in Bangladesh: challenges and opportunities. *International Journal of Public Administration*, *44*(8), pp.685-698.

Barua, M., 2012. E-Governance adoption in government organization of India. *International Journal of Managing Public Sector Information and Communication Technologies*, *3*(1), p.1.

Behl, A., Dutta, P. and Chavan, M., 2019, April. Study of e-Governance and online donors for achieving financial resilience post natural disasters. In *Proceedings of the 12th International Conference on Theory and Practice of Electronic Governance* (pp. 27-35).

Bores, R., 2016. e-Governance in The Digital Economy Era. *Ecoforum Journal*, *5*(1).

Brimkulov, U. and Baryktabasov, K., 2018. e-Governance development in the Central Asian states: best practices, challenges and lessons learned. In *International e-Governance development* (pp. 121-154). Palgrave Macmillan, Cham.

Burlacu, S., Alpopi, C., Mitriță, M. and Popescu, M.L., 2019. Sustainable e-Governance and human resource development. *European Journal of Sustainable Development*, *8*(5), pp.16-16.

Chin, W.W., 1998. The partial least squares approach to structural equation modeling. *Modern methods for business research*, *295*(2), pp.295-336.

Choi, H., Park, M.J., Rho, J.J. and Zo, H., 2016. Rethinking the assessment of e-Governance implementation in developing countries from the perspective of the design–reality gap: Applications in the Indonesian e-procurement system. *Telecommunications Policy*, *40*(7), pp.644-660.

Das, R.K. and Misra, H., 2017, April. Smart city and e-Governance: Exploring the connect in the context of local development in India. In *2017 Fourth International Conference on eDemocracy & eGovernment (ICEDEG)* (pp. 232-233). IEEE.

Delopoulos, H.N., 2010. Barriers and opportunities for the adoption of e-Governance services. *World Academy of Science, Engineering and Technology*, *66*, pp.623-627.

Ebrahim, Z. and Irani, Z., 2005. e-Governance adoption: architecture and barriers. *Business process management journal*. 11(5), 589–611,

Elgohary, E. and Abdelazyz, R., 2020. The impact of employees' resistance to change on implementing e-Governance systems: An empirical study in Egypt. *The Electronic Journal of Information Systems in Developing Countries*, *86*(6), p.e12139.

Farida, I., Setiawan, R., Maryatmi, A.S. and Juwita, M.N., 2020. The implementation of e-Governance in the industrial revolution era 4.0 in Indonesia. *International Journal of Progressive Sciences and Technologies*, *22*(2), pp.340-346.

Fornell, C. and Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, *18*(1), pp.39-50.

Garad, A. and Qamari, I.N., 2021. Determining Factors Influencing Establishing E-Service Quality in Developing Countries: A Case Study of Yemen e-Governance. *International Journal of Electronic Government Research (IJEGR)*, *17*(1), pp.15-30.

Ghorbanizadeh, V. and Elyasi, F., 2016. The effect of cultural and technical factors on e-Governance. *Organizational Culture Management*, *14*(2), pp.521-540.

Giri, S., 2019. Obstacles of Civil Service in Public Service Delivery in Nepal: E-Governance for Good Governance. *International Journal of Computer Science and Mobile Computing*, *8*(3), pp.269-274.

Grigalashvili, V., 2022. e-Governance and e-Governance: Various or Multifarious Concepts. *International Journal of Scientific and Management Research*, *5*(1).

Haider, Z., Shuwen, C. and Burdey, M.B., 2016. e-Governance project obstacles in Pakistan. *International Journal of Computer Theory and Engineering*, *8*(5), p.362.

Hair Jr, J.F., Sarstedt, M., Hopkins, L. and Kuppelwieser, V.G., 2014. Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European business review*. 26(2), pp. 106-121.

Hartanto, D., Dalle, J., Akrim, A. and Anisah, H.U., 2021. Perceived effectiveness of e-Governance as an underlying mechanism between good governance and public trust: a case of Indonesia. *Digital Policy, Regulation and Governance*, 23(6), pp. 598-616.

Henseler, J., Fassott, G., Aluja, T., Casanovas, J. and Esposito Vinzi, V., 2005. Article in monograph or in proceedings PLS'05, PLS and Related Methods. pp. 371-377.

Islam, M.N., Rahman, S.A. and Islam, M.S., 2017, February. Assessing the usability of e-Governance websites of Bangladesh. In *2017 International Conference on Electrical, Computer and Communication Engineering (ECCE)* (pp. 875-880). IEEE.

Ittner, C.D., Larcker, D.F. and Randall, T., 2003. Performance implications of strategic performance measurement in financial services firms. *Accounting, organizations and society*, *28*(7-8), pp.715-741.

Ionescu, L., 2016. e-Governance and social media as effective tools in controlling corruption in public administration. *Economics, Management, and Financial Markets*, *11*(1), pp.66-72.

Kanaan, R.K., Abumatar, G., Al-Lozi, M. and Hussein, A.M.A., 2019. Implementation of m-government: leveraging mobile technology to streamline the e-Governance framework. *Journal of Social Sciences (COES&RJ-JSS)*, *8*(3), pp.495-508.

Kerikmäe, T., Troitiño, D.R. and Shumilo, O., 2019. An idol or an ideal? A case study of Estonian e-Governance: Public perceptions, myths and misbeliefs. *Acta Baltica Historiae et Philosophiae scientiarum*, *7*(1), pp.71-80.

Khan, M., Khurram, S. and Zubair, D.S.S., 2020. Societal e-readiness for e-Governance adaptability in Pakistan. *Pakistan Journal of Commerce and Social Sciences*, *14*(1), pp.273-299.

Kumar, V., 2015. e-Governance for smart cities. In *e-Governance for smart cities* (pp. 1-43). Springer, Singapore.

Magjuka, R.J., Shi, M. and Bonk, C.J., 2005. Critical design and administrative issues in online education. *Online Journal of Distance Learning Administration*, *8*(4), p.1.

Meijer, A., 2015. e-Governance innovation: Barriers and strategies. *Government Information Quarterly*, *32*(2), pp.198-206.

Meiyanti, R., Utomo, B., Sensuse, D.I. and Wahyuni, R., 2018, August. e-Governance challenges in developing Countries: A literature review. In *2018 6th International Conference on Cyber and IT Service Management (CITSM)* (pp. 1-6). IEEE.

Mishra, U., & Sharma, M. (2013). Human factors affecting the adaptability of e-Governance the Indian public sector. *Journal of E-Governance*, *36*(3), 136-142.

Nagaraja, K., 2016. e-Governance in India: issues and challenges. *IOSR Journal of Economics and Finance*, *7*(5), pp.50-54.

Nkohkwo, Q.N.A. and Islam, M.S., 2013. Challenges to the Successful Implementation of e-Governance Initiatives in Sub-Saharan Africa: A

Literature Review. *Electronic Journal of e-government*, *11*(1), pp.pp252-266.

Oliveira, T.A., Oliver, M. and Ramalhinho, H., 2020. Challenges for connecting citizens and smart cities: ICT, e-Governance and blockchain. *Sustainability*, *12*(7), p.2926.

Pereira, G.V., Rinnerbauer, B., Ginner, M. and Parycek, P., 2017, March. Categorizing obstacles in e-Government: Formal and Informal. In *Proceedings of the 10th International Conference on Theory and Practice of Electronic Governance* (pp. 157-166).

Putri, J.K. and Sensuse, D.I., 2018, October. Obstacle factor analysis of e-Governance implementation at the Ministry of Tourism. In *2018 International Conference on Advanced Computer Science and Information Systems (ICACSIS)* (pp. 57-62). IEEE.

Putra, D.A., Jasmi, K.A., Basiron, B., Huda, M., Maseleno, A., Shankar, K. and Aminudin, N., 2018. Tactical steps for e-government development. *International Journal of pure and applied mathematics*, *119*(15), pp.2251-2258.

Sarker, M.N.I., Wu, M., Liu, R. and Ma, C., 2018, August. Challenges and opportunities for information resource management for E-Governance in Bangladesh. In *International Conference on Management Science and Engineering Management* (pp. 675-688). Springer, Cham.

Sharma, S., Kumar Kar, A. and Gupta, M.P., 2021, October. Unpacking Digital Accountability: Ensuring efficient and answerable e-Governance service delivery. In *14th International Conference on Theory and Practice of Electronic Governance* (pp. 260-269).

Sharma, G. and Kalra, S., 2017. A secure remote user authentication scheme for smart cities e-Governance applications. *Journal of Reliable Intelligent Environments*, *3*(3), pp.177-188.

Suri, P.K., 2022. Effectiveness of strategy implementation and e-Governance performance. *Evaluation and Program Planning*, *92*, p.102063.

Suleimany, M., 2021, May. Smart Urban Management and IoT; Paradigm of E-Governance and Technologies in Developing Communities. In *2021 5th International Conference on Internet of Things and Applications (IoT)* (pp. 1-6). IEEE.

Tang, T., Hou, J., Fay, D.L. and Annis, C., 2021. Revisit the drivers and barriers to e-Governance in the mobile age: A case study on the adoption of city management mobile apps for smart urban governance. *Journal of Urban Affairs*, *43*(4), pp.563-585.

Thabit, T.H. and Jasim, Y.A., 2019. The challenges of adopting e-Governance in Iraq. *Current Res. J. Soc. Sci. & Human.*, *2*, p.31.

Ullah, A., Pinglu, C., Ullah, S., Abbas, H.S.M. and Khan, S., 2021. The role of e-Governance in combating COVID-19 and promoting sustainable development: a comparative study of China and Pakistan. *Chinese Political Science Review*, *6*(1), pp.86-118.

Vinzi, V.E., Trinchera, L. and Amato, S., 2010. PLS path modeling: from foundations to recent developments and open issues for model assessment and improvement. *Handbook of partial least squares*, pp.47-82.

Waseem, A.A., Shaikh, Z.A. and Ur-Rehman, A., 2019. e-Governance service system readiness assessment framework from CSCW's perspective. *Mehran University Research Journal of Engineering & Technology*, *38*(1), pp.53-68.

Zoroja, J., Strugar, I. and Jaković, B., 2020. e-Governance in Croatia: Percieved Quality and Obstacles Among Younger Users. *International Journal of E-Services and Mobile Applications (IJESMA)*, *12*(3), pp.85-96.