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## **Cloud Accounting Practice in Small and Medium Enterprises (SMEs) of Bangladesh**

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### **Abstract**

The SME sector is considered as the engines of growth and drivers of innovation and the bloodline of the economy of Bangladesh. This sector creates employment for 7.8 million of the country. Since the forthcoming expected flow of industrial development, as predicted, of Bangladesh depends on the smooth growth of SME, therefore the growth of SME mostly relies on the adoption of technological innovations like cloud computing. The material cloud computing used in SMEs is titled as cloud accounting. This paper aims at exploring the state of the practices of cloud accounting by the small and medium enterprises in Bangladesh with identifying the influencing factors of the practice. To conduct the study, owners and officials of 100 small and medium enterprises have been chosen randomly throughout the country. Semi-structured questionnaire is used to collect primary data which has been analyzed using SPSS-20 and PLS 3.3.3. The results reveal that the adoption rate of cloud accounting practice is near to 50% in SMEs of Bangladesh. The external influences, perceived benefits, and organizational readiness influence the owners to adopt the practice.

**Keywords:** Cloud accounting, external influences, perceived benefits, organizational readiness and SMEs

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### **Introduction**

Cloud Accounting Information System concept has been emerged as the revolutionary concept in the field of accounting because of the rapid advancement in science and technology and the widespread use of Internet in operating high-volume data driven business and non-business functions. Cloud computing technology is the on-demand service provided by cloud service provider companies like Salesforce.com, Google, Amazon, IBM, Microsoft, and many others over the internet. The cloud service is used in the form of Software as a service (Saas), Platform as a service (Pass) and Infrastructure as a service (Iaas) and Recovery as a Service (Raas) in exchange of fee paid as 'pay per use'. Cloud accounting solution makes possible to record all transactions in digital form and exchange those among firms, customers and sellers through online server or database, website or blog or web-blog via internet, facilitating to opening or making accounts with id and password

(Fatima, 2016) irrespective of the user's location (Kavitha 2014) with high speed, accuracy, more data security, timely result and low cost (Teru, et al, 2019).

The cloud accounting enables an accountant to record the financial transactions in e-recording form. It also performs e-reporting, e-budgeting, e-costing and e-pricing. The cost of the cloud Accounting Software using is nominal only Taka 500 to 3000 Taka for different use (Extreme office.com, 2023). Throughout the world Small and Medium Enterprises (SMEs) generally use cloud service of application provided by different websites and social networking like Facebook (2004), Twitter (2006), My Space and what's App. Cloud computing-based accounting systems titled as cloud accounting information systems occupy the significant area in the updated technology adoption in Business world.

Bangladesh, the important member of N11 countries targeting to be a Smart Bangladesh is profoundly touched by Information and Communication Technology, especially in the SME sectors of the country. The SMEs sector is considered as the engines of growth and drivers of innovation and the bloodline of the economy creating employment for 7.8 million people directly and providing livelihood for 31.2 million (BBS, 2018). The sector supplies the country's 25% labor force, about 80% of industrial employment and about 90% of total industrial units. The 8 million establishments consisted sector contributes about 80% to export earnings and 25% to GDP (Ministry of Planning, 2019). The country's 90% private ownership bearing SMEs sector (Asaduzzaman, 2016) use cloud services in accounting at high rate but there remains a scarcity of studies portraying the issue. Although few RMG studies (Hossain & Rahman, 2022) explored the e-accounting practice in RMG industry of Bangladesh, there remains gap portraying the issue in case of the entire SME sector of Bangladesh.

### **Statement of the problem**

According to the Bangladesh National Industrial Policy 2016, in manufacturing, medium industries are those with assets worth Tk. 15 crore to 30 crore (excluding land and factory building and including replacement value) and/or 121 to 300 workers and in service industries/ business, medium enterprises are those having assets (defined as above) worth Tk. 2 crore to 30 crore and/or which employ 51 to 120 workers. In manufacturing, small enterprises are those with assets worth Tk. 75 lac to 15 crore (defined as above) and/or 30 to 120 workers and in service industries/business, are those having assets worth Tk.10 lac to 2 crore and/or which employ 16 to 50 workers. Micro industry would be those with assets worth Tk.10 to 75 lac and/or 16 to 30 workers or less. Cottage industries are those have assets worth Tk.10 lac or less and/or number of workers not exceed to 15 (MoP G 2015). In Bangladesh, most of the SMEs are of family owned (Chawdhury, 1992) and so the negligence is seen in doing their accounting record keeping functions. Again 56% Bangladeshi SMEs do not keep accounting record (Asaduzzaman, 2016). And for having the lack of proper financial records, they do not get financial help from the financial institutions (William, 2008). The ultimate consequence of that, within five years of startup, 60% SMEs are failed (Boachie et al., 2005). To the contrary, at the context of today's 4<sup>th</sup> Industrial revolution emerged by the World Wide Web (WWW), efficient cloud-based accounting software are available anywhere anytime, which are largely practiced in SME natured RMG industry of Bangladesh (Hossain & Rahman, 2022). But total SMEs sector has not been studied in this regard. It is notable that for achieving financial lucrative financial benefits RMG owners are generally forced to adopting this cloud accounting. At the total SME contexts cloud accounting practices, have not been screened out. This study will investigate

to measure the state of adoption of Cloud Accounting Information System at the SME firms with identifying the factors influence the adoption.

### **Rationale of the Study**

The SME sector is considered as the engines of growth and drivers of innovation and the bloodline of the economy creating employment for 7.8 million people directly and providing livelihood for 31.2 million (BBS, 2018). The sector supplies the country's 25% labor force, about 80% of industrial employment and about 90% of total industrial units. The 8 million establishments consisted sector contributes about 80% to export earnings and 25% to GDP (Ministry of Planning 2019) that generates huge revenues. Major activities of SMEs' include record keeping functions which are considered to be the core work. In addition, accounting section of SMEs' is believed to be the entire office of SMEs. Therefore, unless the accounting works of these entities' running efficiently, organizations will certainly face dire consequences. So, fastness is crucial to execute accounting works that is ensured by cloud accounting which assures time saving, accuracy and secured accounting services. Furthermore, cloud accounting services not only can make SMEs faster by the rapid and continuous preparation of financial statements but also minimize overhead cost by almost 50%. To achieve these types of financial benefits SMEs are forced to adopt cloud-based services like cloud accounting. This study that is going to identify the scenarios of cloud accounting practice of SMEs sector will be helpful to non-adopter SMEs owners to adopt cloud accounting. It will also be supportive to get ideas about the cloud accounting adoption in SMEs sector of Bangladesh.

### **Research Questions**

The problem statement originates the following questions:

1. What is the scenario of cloud accounting practices among SME's in Bangladesh?
2. What are the factors influencing to adopt cloud accounting information systems in the SMEs of Bangladesh?

### **Objectives of the study**

The study has made a general objective and two specific objectives based on the raised questions and research gaps. The general objective is to portray the cloud accounting users among SME's in Bangladesh. The specific objectives of the study are following:

1. To assess the scenario of cloud accounting practices among SME's in Bangladesh?
2. To point out the factors influencing to adopt cloud accounting information systems in the SMEs of Bangladesh.

## **Literature Review**

In the true sense, cloud accounting advances from shrink meaning bearing computer-based accounting system to a broader concept applying cloud technologies in the accounting practice (Teru et al, 2019 and Oladejo & Yinus, 2020). The reason lies in the name as 'cloud accounting' where cloud means internet and accounting means the process of recording and reporting (Allaverdi, 2017). The root meaning is that; cloud accounting is the upper version of accounting that is used with using mobile devices connected with internet. Cloud Accounting is also known as e-accounting which means online accounting. Teru et. al. (2019), (Venegas (2017), Amanah et al. (2016), Fatima, (2016), Yadaz, (2015), Kavitha, (2014) state electronic accounting as online accounting system that uses online accounting

software package. Thus, cloud accounting is the synonymous to e-accounting or online accounting using accounting software over the cloud.

Dimitriu & Matei, (2014) informed that unlike traditional accounting system, cloud accounting does not require accounting software licenses, servers, data storage capacity or a team of experts to install accounting information systems and so, investment costs like acquiring software and work servers, and long-term IT maintenance costs is reduced (Arsenie-Samoil, 2011, Christauskas & Miseviciene, 2012). A Romanian interview-based study conducted by Ionescu, et al (2013) shows that the return on investment (ROI) becomes higher for using the cloud accounting. Again, Dimitriu and Matei's study (2014c) shows that the use of cloud accounting improves collaboration in businesses and ensures a real-time update of the financial data with a higher level of data security. Arsenie-Samoil's study (2011), Christauskas and Miseviciene (2012) also opines that as cloud accounting reduces investment that is a good opportunity for small and medium sized organizations (SMEs). Extreme Office (2020) informed that more than 300 Bangladeshi SMEs use their cloud accounting software. Haque, (2018) stated that many companies like Dulal Brothers, Brac Bank, and Zaber & Zubayer Ltd, a subsidiary of Noman Group, uses Oracle cloud accounting solution.

Cloud accounting adoption is an important innovation which is affected by different factors. Australian national research study CCH (April 2013) found that in Australia 14% SMEs use cloud-based software of which young owners / managers aged 18 to 34 are more likely to adopt that innovation. Taragolla et al (2001) showed that the intention to adopt farm accounting software is positively related to a favorable attitude towards accountancy and 'intrinsic objectives'. YAU-YEUNG, (2017) investigated that regulatory compliance, location of data storage, ownership of data and financial statement reliability are the risks concern in using cloud accounting.

Very few researches have been observed regarding e-accounting adoption in SME sector of Bangladesh. Asaduzzamana (2015) found that majority of Bangladeshi SMEs do not keep systematic accounting records. Uddin et al (2017) found that 20% of SMEs of Rangpur keep accounting system directly and the rest 80% keep indirectly. But Azim (2022) supports that Bangladeshi manufacturing firms' keep accounting records in digital form. Nipa (2020) focused on the ICT adoption in the SME natured business sector of Bangladesh RMG sector and mentioned that approximately 45% factories use mobile payment system. Hossain & Rahman (2022, pp. 1) portray that near to 86% RMG factories of Bangladesh use e-accounting in their factories for performing accounting functions. Hossain & Rahman (2023) identified that perceived information quality, perceived system quality and top management commitment positively influence RMG owners to adopt e-accounting. Zebua & Widuri (2023) identified accounting staffs' efficiency as a major inducing factor to adopt cloud accounting in Indonesia. In investigating the cloud accounting's effect of SMEs performance Rawashdeh & Rawashdeh (2023) used TOE framework in which they found technological, organizational and environmental elements influence the cloud accounting adoption. But there remains scarcity of studies on Bangladeshi SMEs' cloud accounting adoption.

### **Conceptual Framework**

There remain, at the global context, some factors that influence cloud accounting users in adopting cloud accounting information systems significantly. Hossain & Rahman (2023) showed that system quality of e-accounting information systems provides less time

opportunity to process accounting information with accuracy and back up facility. Service quality that includes credibility and efficiency of processed data and information quality that includes time and accurate information influence the performance of e-accounting adopters through higher return and less cost benefit. These system quality, information quality and service quality are the basically benefitting features of the cloud accounting technology usage. Besides, few organizational features, such as ICT skilled accountants (Daoud & Tricki, 2013) and other external forces such as ICT trade show, ICT suppliers and trading partner's collaboration attract and motivate the technology adopters to approach and adopt the updated technology. In this regard a renowned technology adoption and effect model is Iacovou et al model (1995) that has been used in many technologies' adoption literature. This study has adopted this model with fewer modification which as the following:

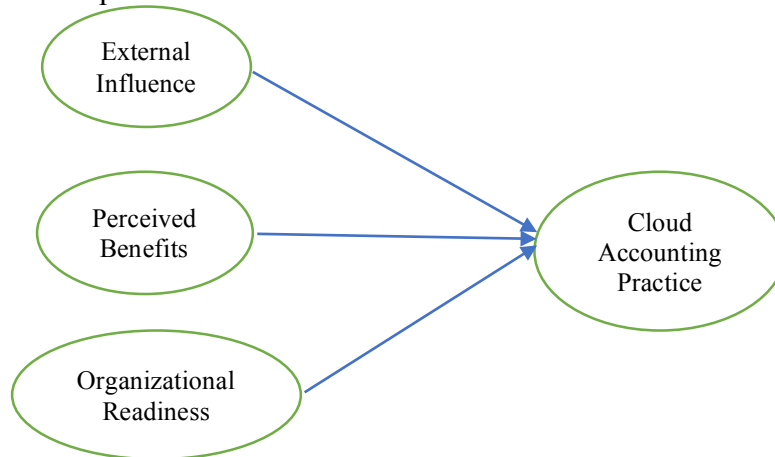


Figure 1: Conceptual Framework of the Study

Based on the above model the study drew three hypotheses which are as the followings:

- H1: Externals have positive influence on cloud accounting usage in SMEs
- H2: Perceived Benefits have positive influence on cloud accounting usage in SMEs
- H3: Organizational Readiness has positive influence on cloud accounting usage in SMEs

### Methodology of the study

The study is of exploratory as well as mixed method in nature. (Schoonenboom & Johnson 2017, pp. 108). In order to test the hypotheses, both primary and secondary data are collected from respective sources. At first, some relevant secondary sources such as journal articles, research papers, conference proceedings, theses and relevant textbooks, website information, reports and magazine etc. concepts of the cloud accounting practices and SMEs of Bangladesh have been framed. Besides, primary quantitative data were collected from SMEs located in several districts of Bangladesh.

The total SMEs i.e about 78 lac small and medium sized business enterprises of the entire sector of Bangladesh has been considered as the population of the study. Among them, randomly selected 100 SMEs located in four districts of the country, has been considered as the sample of the study. This sampling procedure is supported by different studies like Nipa (2020).

Two types of tools have been used to collect primary data from the respondents which are as following:

1. **Structured Questionnaire:** Questionnaire is constructed with demographic information, of respondents and enterprises. The respondents were SMEs Owner, IT officer, and accountant. The asking information were, cloud accounting using types, usage, years, nature, and factors influencing the usage. Among the factors external factor, and internal factors were taken into consideration. In the questionnaire, the purpose of the study was explained briefly but adequately. Respondent anonymity is ensured by requesting the respondents not to recognize themselves anywhere in the questionnaire.
2. Two in depth interviews with cloud accounting service providers and users were done.

External influence has been conceptualized as the ICT trade shows, trading partner's collaboration and cloud accounting suppliers. Perceived benefits are meant as quality system, quality information and quality service provided by cloud accounting software. And organizational readiness means the technology readiness and accounting staffs ICT competence. All variables and items have been measured in ordinal scaling using five-point Likert scale indicating 1 is strongly disagree and 5 is strongly agree.

The SPSS 20.0 and the smart PLS 3.3.3 were used to present and analyze the data. To present the descriptive statistics of the respondents and the enterprises, SPSS 20.0 was used. To express the current practices of cloud accounting and factors influencing the practice, PLS 3.3.3 was utilized. PLS SEM approach has been implemented here. According to Heir et al (2018), in PLS SEM analysis, convergent validity, discriminant validity of the collected facts was tested and measurement model as well as structural model analysis was done and commented on findings. The qualitative data collected from interviews has been used to confirm or not confirm the survey result.

## **Findings and Analysis**

Survey was conducted on 100 SMEs. The major findings are illustrated according to the objectives of the study which are as the following:

### **Scenario of cloud accounting usage in SMEs**

#### **i. Designation of respondents**

The table 01 shows that 45% respondents are of accountants, 42% are owners.

**Table 01: Designation of respondents**

<b>Designation</b>	<b>Percent</b>
Accountant	45.00%
Owners	42.00%
Others	13.00%
Total	100.00%

#### **ii. SMEs location**

The chart 01 shows that maximum factories (38%) are located in Dhaka city. Then Sirajganj, Barisal and Narshingdi respectively.



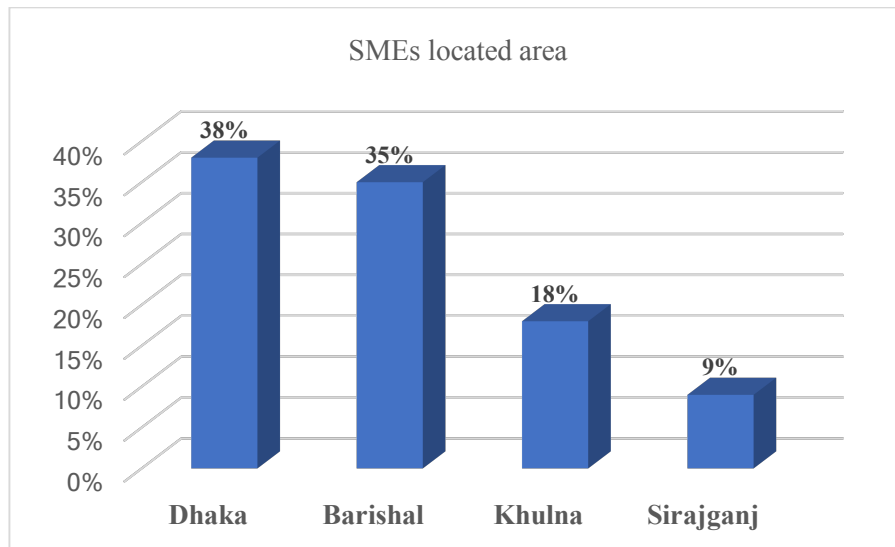


Chart 01: Factory location

### iii. SMEs type

The chart 02 shows that respondents' SMES are of 10 categories. The top is of RMGs (20%).

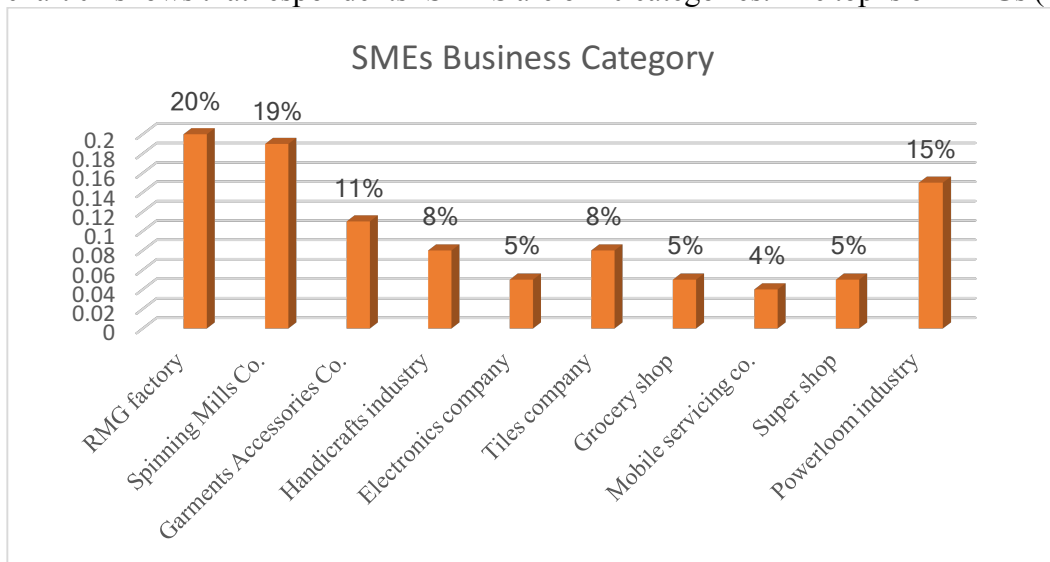


Chart 02: SMEs type

#### iv. SMEs size

The sampled enterprises are of majority small industry. Few micro and medium industry are also within the sample SMEs. The chart 03 shows this information in the following way:

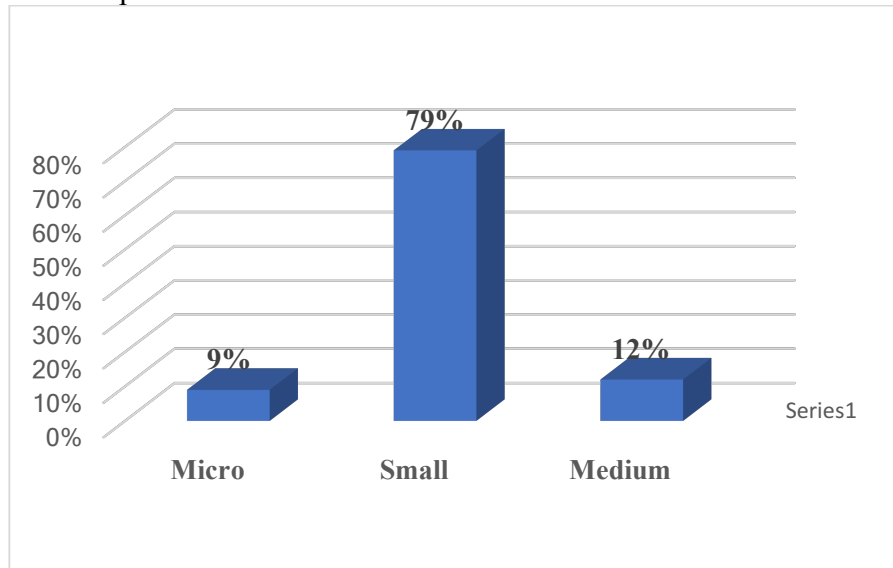


Chart 03: Size of factory

#### v. Cloud accounting practice in SMEs

The chart 04 below, informs that 56% of sampled SMEs use cloud accounting.

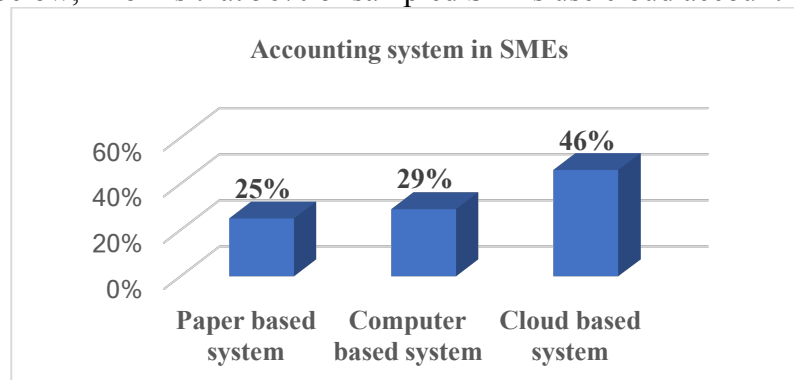


Chart 04: Accounting practice of SMEs

#### v. Types of cloud usage in e-accounting practice

The chart no. 74% of cloud accounting SMEs use public natured cloud service

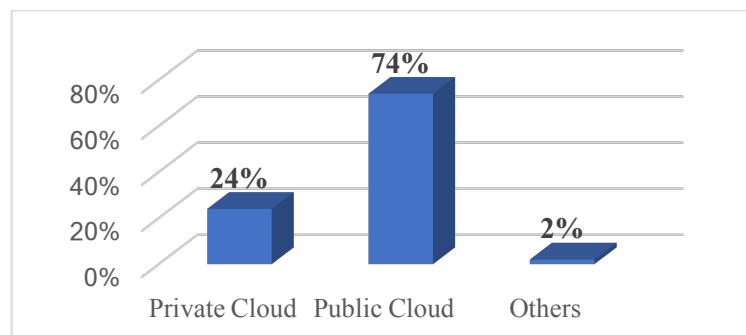
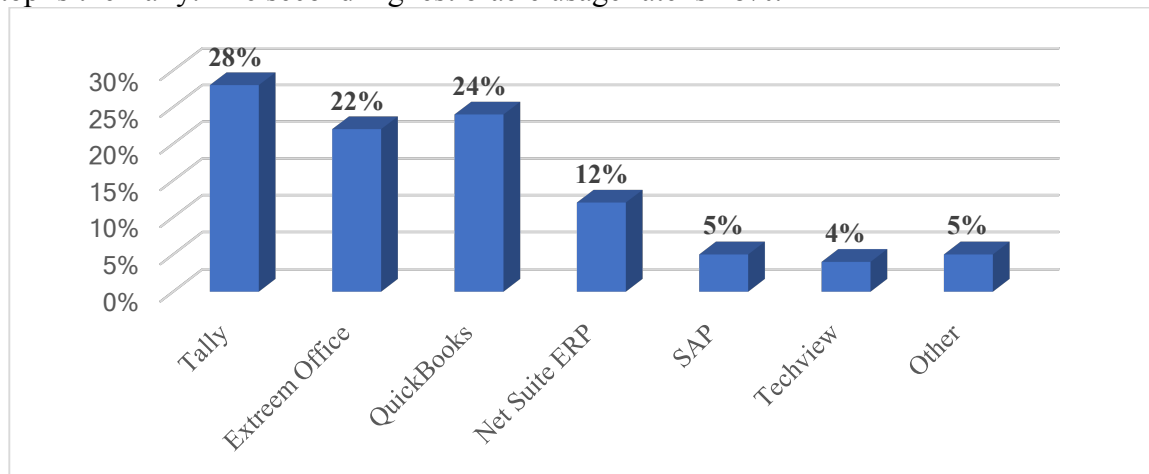


Chart 5: Types of cloud usage



### vii. Cloud accounting software usage in SMEs

The chart 12 presents that different types of cloud accounting software used by SMEs. The top is the Tally. The second highest oracle usage rate is 18%.



**Chart 6: Cloud accounting software used in SMEs**

### Factors influencing the cloud accounting usage in SMEs (using SEM)

According to the SEM theory sketched by Chin, (1998), illustrated by, Urbach & Ahlemann (2010) and presented in details by Heir et al (2019), the measurement model and structural model were analyzed which are as follows:

#### *i. Measurement model appreciation*

Using Smart PLS-SEM approach, the reflective model was run. As exploratory research, every item loading was equal or more than 0.70. Here validity and reliability have been verified and checked. There remain four steps in measurement model analysis which are as the followings:

#### **Step 1: Items reliability**

The table 02 presents the items loadings are within the relevant range which provides reliability of constructs' items.

#### **Step-2: Internal consistency reliability**

The table 02 also shows that Cronbach's alpha and composite reliability (CR) both of reliabilities are above of 0.70 that expresses the reliability is at satisfactory level.

#### **Step-3: Convergent validity (AVE)**

The table 02 also informs that constructs are converged to explain the variance of items. Every construct 'average variance extracted' (AVE) is more than 0.50 which indicates the convergence of constructs of the model.

**Table 02: Measurement model analysis**

Constructs	Items	Loadings	Cronbach's Alpha	CR	AVE
Cloud Accounting Practice	CAP1	0.810	0.895	0.908	0.622
	CAP2	0.776			
	CAP3	0.747			
	CAP4	0.812			
	CAP5	0.785			
External Influence	EI1	0.807	0.778	0.786	0.772
	EI2	0.793			
	EI4	0.727			
Perceived Benefits	PB1	0.718	0.807	0.722	0.547
	PB2	0.727			
	PB3	0.755			
	PB4	0.745			
Organizational Readiness	OR1	0.842	0.814	0.777	0.742
	OR2	0.845			
	OR3	0.732			
	OR4	0.741			

Notes: For having low loadings EI3, EI5, PB5, and OR5 have been deleted. CR means composite Reliability and AVE means Average Variance Extract

#### Step-4: Discriminant Validity

The fourth step of measurement model is to assess discriminant validity. The table 03 shows that all constructs are discriminant from each other. Here Hensler HTMT ratio has been used to express the validity.

**Table 03. Discriminant Validity (HTMT Ratio)**

	1	2	3	4
Cloud Accounting Practice				
Perceived Benefits	0.717			
External Influence	0.793	0.532	0.336	
Organizational Readiness	0.706	0.870	0.849	0.603

### ii. Structural model analysis

The coefficient of determination ( $R^2$ ), is the staple measures of the model analysis. The statistical significance (p values) and relevance of the path co-efficient (t values) are also indicator to accept and reject hypothesis. Before going to measure that one the inner multicollinearity checking was also needed to test that is done by calculating the Variance Inflation Factor (VIF) values. The table 03 portrays that

**Table 03: Inner VIF values**

	<b>EAP</b>
E-Accounting Practice	
Perceived Benefits	2.721
External Influence	1.005
Organizational Readiness	2.008

Now the  $R^2$  calculation is observed in the table 04. Here, the calculated value is large affecting.

**Table 04: Coefficient of determination ( $R^2$ )**

	<b>R Square</b>
E-Accounting Practice	0.751

### iii. Hypothesis testing result (Bootstrapping)

The final phase depicts the hypothesis testing result through bootstrapping calculation. The table 5 presents the PLS SEM results.

**Table 5: Results of the effect**

<b>Hypothesis</b>	<b>Relationship</b>	<b>Std. Beta</b>	<b>Std. Error</b>	<b>T values</b>	<b>P Values</b>	<b>Decision</b>
H1	EI -> CAP	0.510	0.016	12.607	0.000	Supported
H2	PB -> EAP	0.455	0.020	11.558	0.000	Supported
H3	OR -> EAP	0.216	0.049	5.310	0.000	Supported

## Discussions and Implications

From the data presented and analyzed above it is observed that cloud accounting usage that is a common phenomenon in the developed country's business sector is being also adopted in Bangladesh's SMEs sector. This efficient accounting system's usage rate is near to 50% in SMEs of the country. Public cloud adoption tend is seen among them. And the foreign suppliers are preferred here. The study also found that RMG sector is strictly ahead in cloud accounting adoption. Cloud accounting that is basically the internet-based accounting solution usage is adopted being motivated by externals such as trading partners, ICT trade shows and competitors. The SMEs owners are also motivated by the lucrative benefitting features of the cloud-based services provided by the online accounting software. The ICT skilled accountant, updated technology readiness are also the considering factors for cloud accounting adoption in SMEs of Bangladesh. Azim (2022)'s picture was concentrated on DSE listed manufacturing firms of Bangladesh which ignores the most contributory SMEs sector. Hossain & Rahman (2022) and Hossain & Rahman (2023) emphasized on RMG sector of Bangladesh, but SME sector is larger than that of RMG. This study identified the contextual factors in SMEs sector. Zebua & Widuri (2023)'s effort to identify influencing

factors of cloud accounting practice in Indonesian context. And Rawashdeh & Rawashdeh (2023)'s endeavor was at Jordanian context. But this study findings are at Bangladesh context and exclusively at SMEs sector. So, this study findings are a unique one.

This study findings have immense implications in SMEs sector. SMEs official functions are generally accounting works. If the accounting works are accomplished well, all organs running remains smooth and better. Cloud accounting technology is the top most updated technology used in performing accounting functions. According to literature, if SMEs adopt the cloud accounting solution, accounting wing will become sophisticated and business performance will be healthy. Therefore, it should be known which factors are important in practicing cloud accounting adoption. This study findings helps the SMEs owners to understand that trading partners are very significant party because with them trades are done. To keep pace with them new technology like cloud accounting is needed to install and operate. The lucrative benefitting features of cloud accounting motivate the SMEs owners to adopt new technology. The study also assists the SMEs to train up the accounting staffs and be technology ready. The findings bear significance to SME policy holders in formulating ITC policy for SMEs.

### **Conclusion and Recommendations**

The field of accounting is getting huge momentum with the newer innovations of technological advancement and hence the cloud service is the outcome of 4<sup>th</sup> industrial revolution, among others innovative revolutions, which is being adopted mandatorily or voluntarily in many developed countries. Cloud accounting practice means basically the use of 'on demand' accounting software over the cloud which is the updated version of accounting information systems. The aim of the study is to assess the practicing scenario of cloud accounting information systems across the largest business sector SME's of Bangladesh with identifying the influencing factors of adoption. Grounding on the study the conclusion can be drawn that, in this updated ICT world the adoption of cloud accounting in SMEs is enhancing day by day. The lucrative benefitting features like less cost benefit, quick preparation of financial reports with around zero errors, reduction of clerical works, zero data security, influences more the SMEs owners towards cloud-based accounting adoption. In order for achieving Smart Bangladesh the largest business sector SMEs should be more adherence to updated technology like cloud accounting practice. So, SME owners and different regulatory authorities are recommended to pay heed to the flow of global change. In addition, government should encourage small and medium enterprises to adopt such technology while enacting required regulations for the prosperity of this sector by patronizing the adoption of cloud accounting service, arranging training so as to people are aware of cloud accounting adoption in maintaining book keeping activities to accelerate expected growth.

### **Limitations and Future Area of the Study**

The small sample is the important limitation of the study. Factors influencing the cloud accounting usage stated here are also small in number. Except the Iacovou et al model (1995), there remains many other models which portray many other factors. Basically, according to the country and environment the factors vary. Hence small number of factors used in the conceptual model is another limitation. SMEs sample size should be larger. And a conglomerated model taking three or four technology adoption model, could be used to overcome the limitations of the current used model.

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