International Journal of Trade and Commerce-IIARTC
January-June 2021, Volume 10, No. 1 pp. 190-209
ISSN-2277-5811 (Print), 2278-9065 (Online)

COSMOS (Germany) JIF: 5.135; ISRA JIF: 6.717; ISI JIF: 3.721

Technology-Based Entrepreneurship and Its Prospect in Bangladesh

Samira Binte Saif*
Islamic Bank Bangladesh Limited, Dhaka, Bangladesh
E-mail:samiraoct1984@yahoo.com

Abstract

This research is based on a two-technology based enterprise of Bangladesh Q-Cash and Aamra Product. This assignment help me to learn about the practical knowledge and different types of marketing strategy ,financial performance of technology based industry and the scope and opportunity of this industry. Q-Cash and AamraProducts are thetwo-leading tech- industry of our country. This assignment has been based on my experience and practical knowledge gather from technology-based company of Bangladesh.An entrepreneur is an individual who creates a new business, bearing most of the risks and enjoying most of the rewards. Entrepreneurship that proves to be successful in taking on the risks of creating a startup is rewarded with profit , fame and continued growth opportunities .Technology based entrepreneurship is an investment in a project that assembles and deploys specialized individuals and heterogeneous assets that are intricately related to advances in scientific and technological knowledge for the purpose of creating and capturing value for a firm.Technology based entrepreneurship is a form of business leadership based on the process of recognizing high- potential, technology –intensive business.

Key Words: *Technology, Entrepreneurship, Business, Leadership, Q-Cash, Aamra Product.*

PAPER/ARTICLE INFO
RECEIVED ON: 20/05/2021
ACCEPTED ON: 18/06/2021

Referenceto this paper should be made as follows:

Saif, Samira Binte, (2021), "Technology Based Entrepreneurship and Its Prospect in Bangladesh",*Int. J. of Trade and Commerce-IIARTC*, Vol. 10, No. 1, pp: 190-209

**Corresponding Author*
DOI: 10.46333/ijtc/10/1/18

1. Introduction

Information and Communication Technology have deeply influenced today's business world, and the application of ICT among commercial organizations and businesses is widespread. Now tech-companies play an essential role in our day-to-day activities.

Today all types of businesses are gradually using and adopting info and technology-based personal computer, cost-effectiveness, and cheaper ICT products. Therefore, the use and implementation of ICT can progress commercial competitiveness with the internet if long as numerous opportunities for SMEs, large companies, a new enterprise of our country.

Here, the study focuses on improving a deep understanding of the issues that affect the adoption and practice of ICT by tech companies in Bangladesh to improve organizational performance to get financial success. This study observes the association between ICT adoption and its five factors: perceived benefit, perceived cost, ICT knowledge, external pressure, and government support for an organization to achieve financial success. In our country, technology-based entrepreneurship plays a vital role in raising the standard of living and make our life easy and comfortable. Tech enterprises also save our time and make our life more convenient.

There is some problem associated with the statement "Technology-based enterprise and its prospect in Bangladesh."These problems are cost, ICT knowledge,external pressure, Government support, statistical tools, etc.

These problem statements are discussed below:

i. Cost

The price of technology adoption is a significant issue in adopting and using the web of a specific entrepreneurship/ enterprise project. The higher the costs of adopting technology, the slower the pace of invention expansion.So price or cost is a significantproblem for adopting technology in an enterprise.

ii. ICT knowledge and skill

Current technology research is employment on Enterprise either large or small, and examined how all types of enterprises tend to avoid/resist ICT into this firm/company because of lack of ICT knowledge. Therefore, it is considered a significant problem of adopting ICT in an enterprise in Bangladesh.

iii. External Pressure

Outside pressure like pressure from business, trading associates strongly influencedadopting ICT in entrepreneurship/ enterprise in Bangladesh.

iv. Government Support

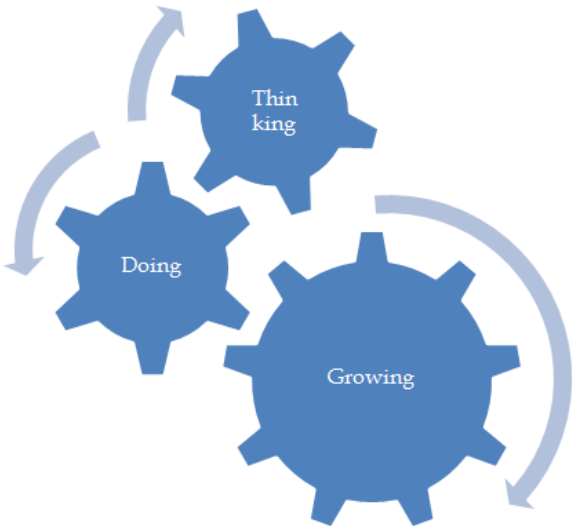
Both the enterprise and government bodies have a role to play in promoting and supporting organization networking and the ICT of a specific enterprise. However, government support in Bangladesh is not sufficient in this tech-enterprise sector.

2. Literature Review

Technology-based business/entrepreneurship, also known as a tech company, focuses on the development and manufacturing that uses leading-edge scientific and technological knowledge

systematically and continuously to produce new goods or services with high added value."Entrepreneurship means being the owner that is willing to take a risk, do work hard enough, to sacrifice everything else around them, all in the name of solving the problem because no one else is capable or possesses the desire." So says Founder and CEO of New Flow Christopher Malaria.
The meaning of entrepreneurship is a bit different for Jolojit Tamanaha, Director of Marketing and Finance of Fresh Prints, who shares, "Entrepreneurs make their way down a never-ending list of problems with grit, passion, and energy. While an entrepreneur means you get to live life learning an incredible amount and maximize your impact on the world because you have to tackle the hardest problems."
Nicole Faith, the founder of 10-carat creations, breaks it down," an entrepreneur means having a plan and vision but still succeeding or trying to succeed when the plan falls apart, and you are lifting with only your imagination. It also denotes that knowing when to give up, especially if your idea isn't working due to forces outside of yourself."
Research and development through the use of technology, the business can research the market through secondary data. This is extremely useful as it provides the industry with in-depth knowledge about needs before penetrating them. Finally, entrepreneurship means the process of creating a new enterprise and bearing any of its risks, with the view of making a profit.The person who creates or forms a new enterprise and embraces every challenge for its development and operation is an entrepreneur.

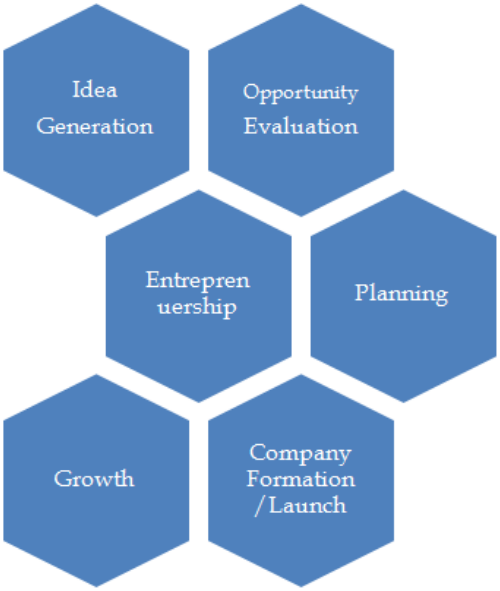
The entrepreneurial process has four distinct phases,
i. Identification and evaluation of the opportunity,
ii. Development of the business plan,
iii. Determinant and evaluation,
iv. Resource recovery.
The entrepreneurship process can be easily split into three stages; thinking, doing, and growing.



Entrepreneurship is essential, as it can improve the standard of living and create wealth, not only for the entrepreneurs' but also for the related business and overall economy. Entrepreneurs also help drive change with innovation, where new and improved products enable new markets to be developed. The advantages of entrepreneurship are discussed below:

i. Easier, faster, and more effective communication.
ii. Better,more efficient manufacturing technique.
iii. Less wastage of products and productivity.
iv. More efficient stock management and ordering systems.
v. The ability to develop new innovative approaches.
vi. More effective marketing and promotion.

It is helpful to break the entrepreneurial process into five phases: idea generation, opportunity evaluation, planning, company formation/launch, and growth.



The entrepreneurial life cycle repeats itself in all sizes, from startups in a garage to corporate entrepreneurship activities in global fortune 500 companies. In addition, entrepreneurs are directly involved in the dynamic and very complex interrelationship between financial management and business strategy. The most famous entrepreneurs globally are Bill Gates, Jeff Bezos, Warren Buffet, Jack Maa, Marks Zuckerberg, etc.

Different types of entrepreneurship exist in the modern world. Such as;

a. Small business Entrepreneurship,
b. Large company Entrepreneurship,
c. Scalable Start-up Entrepreneurship,
d. Social Entrepreneurship,

e. Innovative Entrepreneurship,
f. Hustler Entrepreneurship,
g. Imitator Entrepreneurship,
h. Researcher Entrepreneurship.

There are some critical elements of Entrepreneurship, which are also called traits and characteristics of an entrepreneur. These traits are given below;

a. Innovation: An entrepreneur is the critical source of innovation and variation in an economy.
b. Risk-takers: Entrepreneurship and risk-taking go hand in hand.
c. Vision: An entrepreneur has a great vision.
d. Flexible: An entrepreneur must be flexible. They must take any change easily.
e. Knowledgeable: An entrepreneur must have correct knowledge about their business.
f. Independent: An entrepreneur must work independently to achieve their goal.
g. Energetic: An entrepreneur must have enough energy to work endlessly.
h. Creative: An entrepreneur must have various creative ideas and thinking.
i. Dynamic Leader: An entrepreneur must have leadership qualitiesto run a firm/company.
j. Responsive to suggestions or criticisms: An entrepreneur can gladly accept any criticism and respond positively to any suggestions.
k. Resourceful: An entrepreneur must have a resourceful person to solve any problem.
l. Initiators: An entrepreneur must be an initiator to start any new business.
m. Persistent: An entrepreneur must be persistent.They can accept failures and persistence upon working.

Technology-based entrepreneurship has an innovative role in the emerging knowledge economy (RAE 2012) especially at an international level (EC; 2005; BERR, 2008).Indeed the effective use of technological innovation is considered to be a prerequisite for business survival (Packham, 2002; Packham et al., 2005).It has been recognized that technology-based entrepreneurship isessential for economic growth. It has been noted that there is a need for an international focus on businesses having access to global markets.(OECD, 2005).

Mobile phones have made the work of an entrepreneur much more accessible. Making appointments with clients or investors reaching out to peoplealso becomes easy when are have a device in hand that needs nothing but signals. Internet, e-mails, and VoIP are becoming a companies card to save money and make life easier. Where it's setting up virtual workspaces where employees can interact and develop ideas or connect to international business through video conferencing. Technology can be used as an outlet that allows companies to collect feedback from their customers, improving or altering a product.

A technical entrepreneur is a person who uses technology, be it an app or software, for business purposes. A consolidator is an example of a technology entrepreneur who uses their skills in linking technology and business aspects.

There are some apps or technology used in tech- Enterprise, such as

i. Computers: They are used across multiple businesses.
ii. Software: Computers use different kinds of programs and operating information, known as software, to do specific tasks.

iii. Networking: Networking or connection is essentialfor technology-based enterprises.
iv. Telephone Communication: It is significant for tech- business.
v. Accounting system: Accounting software is an essential tool for tech- business.
vi. Inventory control system: It is essential fora technology-based enterprise.

Different industries and companies rely on technology because it improves business communication, optimizes production, inventory management, and financial record keeping.
Technology-based entrepreneurship has a creative role in the modern economy, especially in the national and international economies. Indeed the effective use of technological innovation is considered to be a prerequisite for any business survival (Packham, 2002;Packham et al.,2005).Furthermore, it has been recognized that technology-based entrepreneurship is essential foreconomic growth. It has been noted that there is a need for an international focus on a business having access to global markets (OECD, 2005).
There are various tech starts up in Bangladesh. Such as Pathao, Sheba.XYZ, Shohoz , Chaldal, Khass Food, Q- Cash, Nitex, Zantrik, Aamra Product, Truck Lagbe etc.
Start-up Bangladesh Ltd, the flagship venture capital fund of the ICT ministry, announced today that it had made its first series of investments of BDT fifteen crore into seven local tech startups. The announcement came on launching of;"Shato Borshe Shato Asha." A unique initiative under which the tech company plans.Bangladesh Bank announced a BDT 500 crore startup fund to finance startups in the country.
The startup eco-system in Bangladesh, starting its journey in the early 2010s, has gone through a remarkable transformation and is finally coming of age. First, the ecosystem crystalized around Dhaka and Chattogram on the back of IT, E-Commerce, and digital marketing. The next wave, faced by the ride-sharing and logistics industry, has taken the ecosystem even further.
The ride-sharing and logistics sectors' investment is Pathao (USD 12 Million from Go- jek). Shohoj (USD 15m from Golden Gate Ventures), Deligram (USD 2 million from Sky catcher) have successfully captured the attention of both local foreign investors. An enabling digital ecosystem, demonstrated by high internet and smartphone penetration rates of 55% and 31%, respectively, has given rise to the number of technology-enabled service providers within the tech startup arena.
In the coming years, emerging sectors; Fin-tech, Agri tech, Health-tech, Edu tech, Deep tech, and Analytics will keep spearheading start-ups in Bangladesh.
Ecosystem Developing:
To gain a deeper understanding of the ecosystem, I interviewed funders and top management from hundredsof startups across the industries in our country. First, I asked them about their respective industries' current and expected sentiment; by applying harmonized index formula, each sector has been scored. On a scale of -100 to +100, the overall start-up confidence indent stands at +40, indicating moderately positive sentiment. At the same time, I asked the investors to mention the top sectors they preferred based on current performance and future growth.

Prospect of Technology-based Enterprise:
Both the investors and start-ups have rated Fin-tech and ride-sharing and Logistics as two of the most promising sectors.In addition, health tech and Edu -tech are estimated to be at the forefront of the subsequent growth.

Despite investors' high confidence in the E-commerce sector and lucrative funds raised by Chaldal (USD 5.5 Million from International Finance Corporation), Daraz(acquired by Alibaba), Sindabad.com(USD 4.2 million from Aavishkaar Frontier Fund). Players consider the sector of a low confidence one as the percentage of line purchase is still less than 1% of the total retail purchase regardless of the high disposable income and internet penetration rate.

Ecosystem Builders:

Bangladesh's start-up ecosystem has had a late start compared to its regional peers. However,the exemplary growth was possible due to the successful implementation of many country-wide incubators and accelerating programs.

The global and local incubators and accelerators have been assisting entrepreneurs in aspects ranging from scaling up their ideas to raising funds and becoming sustainable in the long run.

Grameen Phone Accelerator powered by seed stars is one of the most extensive tech accelerator programs that has assisted successful startups such as –Sheba XYZ (Online service marketplace), CMED Health (Artificial Intelligence (AI) enabled health-tech platform.) Repto (Online learning platform) among others to graduates. Since 2016, Bang link incubator has been facilitating innovative ventures to grow further in association with ICT Ministry. Jason (m- health platform), Ishkul (school management software), Axis Technologies(Personal and Industrial robotic automation solution providers) are some of the most promising alumni graduating from the network Robi Axiata Limited has recently launched. R-Ventures (a reality show and investment platform) aiming to transform the digital business into a reality.

Access to technology vital for women entrepreneurship development:-

Sophisticated entrepreneurship and its sustainability depend on technology. As a source of instant help bridging communication gaps, it reduces time to gather information considered the numbers one raw material for an entrepreneur. In addition, it minimizes cost and makes an enterprise competitive. However, access to technology for Bangladesh is nominal only more so far women entrepreneurs.According to global information, the internet penetration of Bangladesh is 14 percent in 2016), while it was 10 percent in 2015. In China, internet penetration was 50 percent in 2016.

Technology has substantial effects on business operations. Notwithstanding the size of an enterprise, technology has both tangible and intangible benefits that help women entrepreneurs (WE) to make money, produce results, and meet customer demand. In addition, technological infrastructure affects the culture, efficiency, and relationships of a business/farm.

Sustainable Development Goals (SDGs) seek to change 21st century, addressing key challenges such as poverty, inequality violence against women and girls. Women's empowerment is a precondition for this. SDG 5 targetseight advocateswho enhance technology, mainly information and communication technology, to help women's empowerment.

Under Digital Literacy Gaps – an APP is now available to gauge how much time a woman spends on work and how much they earn. So technology can give affordability of a higher standard of living, and an entrepreneur can bring efficiency in the production line by using selected to demand-oriented technology. Bangladesh is much behind in providing policy support to women-entrepreneurs for technology use.

Business Initiative Leading Development (BUILD) a partnership organization of ACCL, MCCI, and CCI. BUILD has taken the initiative to conduct a small study to see how best the same policy Advocacy can be done for Women Entrepreneur to fit them in a better position.

Initially, there was an understanding that Women Entrepreneur is engaged mainly in the micro and cottage sector for long and some traditionally more miniature economic handicrafts and fashion-based clothing products. Still, now things have been changing, women contributing to outsourcing on receiving freelance training on making software, electrical and electronics, effects, light engineering, and many more.

With over 170 million people and around 147 million mobile subscribers, Bangladesh is one of Asia's most important markets. It makes Bangladesh is a land of opportunity for entrepreneurs.Many entrepreneurs have already started experimenting with their ideas, and the results are pretty stunning.I have already discussed $100 million valued startups in Bangladesh; that being said, Bangladesh has a growing number of startups to watch.

Here I discuss a comprehensive list of top Bangladeshi startups:

a. **Pathao:**It is the first growing tech startup in Bangladesh founded in 2015; it has already become the leading ride-sharing platform with –on-demand food and parcel delivery.It also provides supports to the E-commerce business.
b. **Sheba.**XYZ:It is the most prominent service marketplace in Bangladesh. It offers on-demand services like appliance and gadgets repair, beauty services, electrical and sanitary, home shifting and renovation, cleaning, and pest control, car rental, and many more.
c. **Shohoz:**It is a leading online ticket booking service provider in Bangladesh. It offers bus tickets, launch tickets, event tickets, movies tickets, etc.
d. **Chaldal:**It is an online grocery platform based in Dhaka, Bangladesh. It sells fruits and vegetables, meat and fish, snacks, dairy products, baby products, home appliances, and more.
e. **KhassFood:** Khass food started its journey as an online organic grocery shop. The firm was established in 2015,and its aim way to provide organic food to the people of Bangladesh.Khassfood started by taking orders through a Facebook page with the standard products. Still, now they have a website, distribution channels, more than five warehouses, and six physical shops with various types of products to offer.
f. **NItex:**Nitex is an entirelydigital supply chain management company.That aims to assist fashion brands in reaching their goal.It provides clothing of all types and sizes.
g. **Zantrik:**It is adigital vehicle maintenance startup that will clean, fix, paint and maintain our vehicle anytime, anywhere.
h. **Truck Lagbe:**It is a startup focusing on providing us with time for the right truck at the right time in the right place.
i. **Gaze:**It is an official intelligence tech business that was founded in 2018, unlike other Gaze is a little different. Gaze provides API for visual recognition such as face recognition, product recognition, identity verification, multilingual OCR, license plate recognition, and many more services.
j. **SOL** share: It share brings in a digital solution to the solar energy system.SOL share was founded in 2001, and they interconnect solar home systems intointelligent peer-to-peer microgrids that monetize solar energy with mobile money.

k. **Kudo:** It was the first brand to introduce a cloud kitchen in Bangladesh. Kludo was founded in 2019, and they aim to transform the food industry by improving their old restaurant models.
l. Landknock: Landknock is a company that offers field force management software, products targeting logistics software,and home delivery tracking software for other companies.
m. **Praava:**It is a digital family health care center that started its operation in Bangladesh in 2017. Praava health enabled a platform for people to consult a doctor by staying at home through a smartphone.
n. **Repto:**It is a very popular online education platform in Bangladesh. It has over 90 courses in programming, English Language, Digital Marketing, Graphic Design, Entrepreneurship, Technology, and many more.
o. HungryNaki:It is the first online food delivery service provides in our country.
p. **Handy Mama:**It is a service platform that provides services like cleaning, plumbing, electrical home appliance, painting, pest control, pack & shift,and many more.
q. **CMED Health:** It is one of the most promising health techs start-ups in Bangladesh. It's a cloud-based health tech monitoring system for preventive health care.

3. Methodology

Methodology refers to how data is collected, analyzed, and interpreted for a specific topic. There are mainly two types of data collectionmethodology/technique, such as;

i. Qualitative data collection method,
ii. Quantitative data collection method.

Some other methods also exist, such as Explorative/Formulate, Descriptive vs. Analytical, Diagnostic, Applied vs. Fundamental, Conceptual vs. Empirical, Diagnostic research, Historical research methodology, etc.

Qualitative Data Collection Method

The qualitative data collection method involves collecting and analyzing non –numerical data (e.g., text, video, audio) to understand specific concepts, opinions, or experiences.It is commonly used in the humanities and social science in anthropology, sociology, education, health science, history, etc.

Anything that's qualitative data collection method has to do with the characteristics or features of something, rather than its quantity. Examples of qualitative data collection s include sex (male or female), name, state of origin, citizenship, etc.

Quantitative Data Collection Method

The quantitative data collection method is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causual relationships , and generalize results to abroader population.

The quantitative data collection method collects information from existing and potential customers using sampling methods and sending out online surveys, online pools, questionnaires, etc. The resultscan be depicted in the form of numerical.It is a scientific inquiry to focus on a particular problem or topic affecting the sample population.

There are several methods by which we can collect quantitative data, which include,

i. Experiment,
ii. Controlled observations.
iii. Surveys, Papers,KIOSKS, mobile, questionnaires.
iv. Longitudinal studies,
v. Telephone Interview,
vi. Face to Face interviews.

This research used the quantitative data collection method since it is based on numerical data andobservations. Here,I completed the studyon the prospect of technology-based entrepreneurship/enterprise in our country. Here I choose two Tech companies naming Q-Cash and Aamra products. I used Regression Analysis, Variance Inflation Factor Analysis, and Correlation Test analysis for discussion andanalysis. All these are based onthe quantitative data collection method.

In this study, I used internal management of these two companies and outside stakeholders such as inventory and government regulators, important forums, and financial data, including assets, liabilities, revenues, equity, income, expenses, and cash flow. Thesehad helped me to determine how well these two company to manage their finance.

The data is collected from the secondary sources of data, annual report of Q-Cash of the year 2020, 2019, 2018, 2017, 2016, 2015, and Aamra Product of 2018 and 2019,respectively.

This data is used to compare and analyze the number of products, revenue stream, and overall performance of those two companies. Again these data also represent the relationship of various productsand revenue of these two companies in those years.

Financial statements and data are essential because they contain important information about a company's financial health. In addition, these financial data help a company make informed decisions since they highlight which areas of the company earn or provide the best ROI(Return On Investment).

I use the quantitative data collection method, Regression Analysis, Correlation Test, Analysis of Variance to analyze the technology-based Enterprise and their prospect in Bangladesh. I choose "Q-Cash" and "Aamra Product" two technology-based enterprisesfor my research Purpose.

Company background:

i. Q-Cash

Q-Cash is building a growing electronic transaction processing capacity; it offers a suite of integrated retail banking products that include ATM management, POS and Merchant system, credit and debit card system,and exclusive Islamic credit card management system in Bangladesh's largest payment consortium in Bangladesh. Now 35+ banks in the rapidly evolving arena of electronic payment and transaction system Q-Cash provide banks and retailing with an advanced infrastructure for online transaction processing of settlement while operating the largest independent ATM and merchant network in Bangladesh.

ii. Aamra Product

It is a pioneer in information and communication technology with a varied range of state-of-the-Art products and services to meet the demand in the local market. Aamra product delivers performance products and services to the customer, combining technological, economic, and

personal aspects of performance makes the difference at Aamra development. There isa various product of Aamra product,such as:

a. Aamra Information Limited.
b. Aamra NetworkLimited.
c. Aamra Technology Limited.
d. Aamra Outsourcing Limited.
e. Aamra Solutions Limited.

Here I use Regression Analysis, VIF analysis, Correlation test for data analysis purposes.

Regression Analysis:

Regression Analysis is a set of statistical methods. It is used to estimate the relationship between a dependent variable and one or more independent variables. It can be used to assess the strength of the relationship between variables and modelthe future relationship between them. There are three types of regression analysis, such as;

1. Linear regression analysis,
2. Multiple regression analysis,
3. Non-linear regression analysis.

The most commonly used models are simple linear regression analysis and multiple linear regression analysis.

The model of regression analysis is;

$$Y=ax+b$$

Where;
Y= Dependent variable
X= Independent variable
a=Intercept
b=slope

Variance Inflation Factor Model (VIF)

VIF is a measure of the amount of multicollinearity in a set of multiple regression variables. Mathematically the VIF for a regression model is equal to the ratio of the overall model variance to the variance of a model that includes only that single independent variable. This ratio is calculated foreach independent variable. Thus, ahigh VIFI indicates that the associated independent variable is highly collinear with the other variables in the model.

Mathematically, $VIF= 1/(1-R^2)$

Here R^2 is the coefficient of determination of variables

Correlation Test

It is a statistical methodused to discover a relationship between two variables/data sets and how strong a relationship may exist.

Correlation Test, $r=\sum\{(X-x)(Y-y)\}/\text{Root Square } \sum\{(X-x)^2(Y-Y)^2\}$

Here, r= Correlation coefficient

X= values of the X variables in a sample
X= mean of the values of the X variables
Y= values of the Y variables in a samples
Y= mean of Y variables in a sample.

4. Data Analysis of

A: Q-Cash Company

Table:1

Year	Product/service (X)	Revenue(Y)
2019-2020	25	1319766723
2018-2019	24	925430760
2017-2018	24	802592068
2016-2017	22	1148441568
2015-2016	22	986281850
Total	117	5182512969

(Source: Internally collected from the organization)

Here,

X= Product/service of Q-Cash,
Y= Revenue of Q-Cash,
Number of observation n=5
Average of x=117/5
=23.4
=23
Average of y=5182512969/5
=1036502594
We Know, Y=a+bX
b={∑(X*Y)}-{(∑X*∑Y}/{(∑(X^2)-∑ X)^2
a=(∑Y-b*∑X)/n

Table:2 Regression

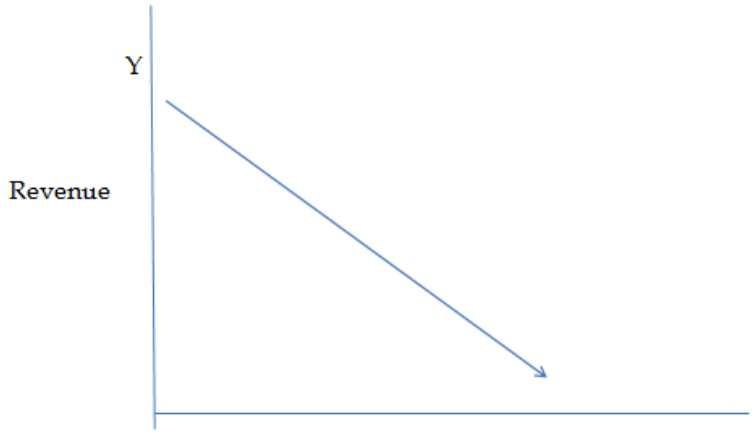
X	Y	X^2	Y^2	X*Y
25	1319766723	625	1.741784203^18	3.299416808^10
24	925430760	576	8.564220916^17	2.221033824^10
24	802592068	576	6.441540276^17	1.926220963^10
22	1148441568	484	1.318918035^18	2.52657145^10
22	986281850	484	9.727518876^17	2.16982007^10
Total		2745	3322969180	4220775467

(Source: Computed by the author)

Now,
b={(5*4220775467)-(117*5182512969)}/{(5*2745)-(117)^2}
=-7663978.682
a={5182512969-(-7663978.682*117)}/5
=1215839695

Now, Y=a+bX
Y= 121583965+(-7663978.682)*X
Y= 121583965-7663978.682X
Let X=25, then
Y= 121583965-7663978.682*25
=-70015498.05
Again let X=10, then
Y=121583965-7663978.682*10
=44944178.18

So there is negative relation exists between revenue and product/service of Q-Cash. So if the number of products/services increased,income is decreased.



Numbers of product/service X
Fig: Graphical presentation of revenue and product/service of Q-Cash.(Negative Relation)
Here, the curve is downward sloping because an inverse relationship exists between the number of Q- Cash company products and revenue.

VIF Analysis
VIF=1/(1-R^2)
R^2=1- SSE/SSXY
Where,
SSE=∑ (Y−Y ')^2

SSXY=∑(Y-Y)^2
Y is the actual value of Y
Y is the mean of Y values.
Y' is the predicted value of Y variables.
We know, Y'=bX+a
Now,y=5182512969/5
=1036502594
SSxy=∑(Y-y)^2
={(1319766723-1036502594)^2+(925430760-1036502594)^2+(802592068-1036502594)^2+(1148441568-1036502594)^2+(986281850-1036502594)^2}
=42.07245033
Here, X= 25,24,24,22,22 (number of product/service year 2020,2019,2018,2017,2016 respectively.)
Now,Predicted value of Y are,
Y'1=121583969+(-7663978.682)*25
=-70015498.05
Y'2 = 121583969+(-7663978.682)*24
=-62351519.3
Y3'= 121583969+(-7663978.682)*24
=-62351519.37
Y'4= 121583969+(-7663978.682)*22
=-47023562
Y'5=121583969+(-7663978.682)*22
=-47023562
SSE=∑(Y-Y')^2
SSE1={1319766723-(-70015498.05)}^2
=1.931494622*a0^18
SSE2= {925430760-(-62351519.37)}^2
=9.757138314*10^17
SSE3={802592068-(-62351519.373)}^2
=7.481274093*10^17
SSE4={1148441568-(-47023562)}^2
=1.429136877*10^18
SSE5= {986281850-(-47023562)}^2
=1.067720074*10^18
Now, ∑SSE=SSE1+SSE2+SSE3+SSE4+SSE5
=168.7700016
R^2=1-(SSE/SSxy)

=1-(168.7700016/42.07245033)
=1- 4.011413651
=-3.011413651
VIF= 1/(1-R^2)
=1/{1-(-3.011413651)
=1/4.011413651
=0.2492887676
= 0.25

VIF is the reciprocal of the tolerance value. Small VIF values indicate low correlation among variables. Ideal condition VIF<3.VIF is less than oneshow ridge regression.It shows independent variables are highly correlated; here, the product/service of Q-Cash ishighly correlated.

B. Aamra Product

For analyzing the data of Aamra product, a technology-based company in Bangladesh, I choose Correlation test and Regression analysis for data analysis purposes.

Correlation Test

We know Correlation Test, r=∑{(X-x)(Y-y)}/ SquareRoot∑{(X-x)^2∑(Y-y)^2}
Here,
r=Correlation Coefficient
X= Values of X variables in the sample
X=Mean of the values of X variables.
Y= Values of Y variables in a sample
Y= Mean of values of Y variables in the sample

Here I consider two years of product/service and revenue of Aamra product.
Segment-wise or product-wise Revenue performanceof Aamra Product in the year 2019 and 2018, respectively.

Table:3

Particulars	Revenue of the year 2019(X)(BDT in million	Payment of the year 2018(Y)(BDT in a million)
Sales of Equipment	216.59	306.80
Sales of Services	206.42	243.32
Sales of Software	129.38	127.83
Sales of Bandwidth	1016.84	568.84

(Source: Internally collected from the organization)

Now I prepare some tables for calculation:

Table:4

Particulars	Revenue of year 2019(BDT in million) X:	Revenue of year 2018(BDT inmilion) Y:
Sales of Equipment	216.59	306.80

Sales of Service	206.42	243.32
Sales of Software	129.38	127.83
Sales of Bandwidth	1016.84	568.84
Total	1569.23	1246.79
Mean of variables	392.3075	311.6975

(Source: Internally collected)

Here, n=4
X=1569.23/4
=392.3075
Y=1246/4
=311.6975

Table:5

X	Y	X	Y	(X-x)^2	(Y-y)^2
216.59	306.80			30876.639	23.9855
206.42	243.32			34554.1626	4675.482506
129.38	127.83	392.307	311.6975	69130.87	33807.25756
1016.84	568.84			390040.8436	66122.26531
Total				524602.5152	104628.9909

(Source: Computed by the author)

X-x=0.0005
Y-y=0.0425
R=∑{(X-x)(Y-y)}/square root∑{(X-x)^2(Y-y)^2}
=(000.5*0.0425)/squareroot(524602.5152*104628.9909)
=0.090702

To test whether the association i.e. merely apparent, and might have arisen by chance use the t-test in the following calculation,
t=r*squareroot{(n-2)/1-r^2
Here,
n=4,
r= 0.09070
t=0.09070*squareroot{(4-2)/1-(1-0.09070)^2
0.13
There is a linear relationship betweenthe year 2019(X) and year2018(Y).Revenue increase proportionately in these two years.The Sale of equipment, Sale of service, Sale of software, and Sale of Bandwidth is proportionately increasing in the year 2018 and year 2019, respectively.

Regression Analysis

From the annual report of Aamra product, I get the following data for Regression analysis purposes:

Table:6

Year	Quantity of sale equipment(X)	Revenue (Y) BDT in Million
2019	7558	216.59
2018	6316	306.80

Here,
n=2
∑X=13874
Mean of X variables x= 13874/2
=6937
∑Y=523391491
Mean of Y variable is= 523391491/2
= 261695745.5

Table:7

Year	X	X^2	Y	Y^2	XY
2019	7558	57123364	216590425	4.69114122*10^16	1.636990432*10^12
2018	6318	39917124	306801066	9.41268941*10^16	1.938369135*10^12

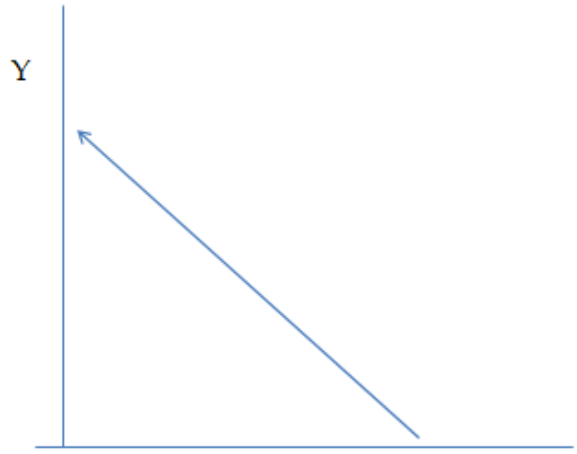
(Source: Computed by the author)

∑X= 13874,
Mean of x=13874/2= 6937,Mean of y= 261695
∑X^2= (7558)^2+(6318)^2=97040488
∑Y^2==1.410383063*10^12
∑XY= 3.575359567*10^12
∑X∑Y=13874*523391491=7.261533546*10^12

Now, b={n*∑XY−∑X∑Y}/n*∑(x)^2−(∑X)^2
B= -69337.53859
a=(∑Y-b∑Y)/n
a=742690250.7

Now, The Regression model is; Y=a+bX
If X=7558
Y= -742690250.7+(-69337.53859)*7558
=21867134

So there is a positive relationship exist between Sale equipment and revenue of Aamra product years 2019 and 2018, respectively.If the Sale of equipment increases, the paymentalso increases.



(Quantity of sale equipment) X

Fig:Graphical presentation of the quantity of sale equipment and revenue of Aamra Product.

A proportional relationship exists between the number of sales and revenue of Aamra Product, so if the number of sales increases,income is also increased in the year 2019 and 2018, respectively.

5. Limitations of the Research

Despite my wholehearted efforts, there are some limitations of my study, some of them are mentions here:

1. Collecting the financial reports from the most authentic sources; some of the necessary data went missing in this research monograph because ofsecondary data sources.

2.As I couldn't find some data at all, I have to not calculate some formulas without considering them, for instance-market price per share,Interest, opening, and closing inventories, credit sales, credit purchase,accounts receivables, accounts payables, etc. data are not available in the annual report of Q-Cash and Aamra Product companies.

6. Result/Discussion

The above calculation shows that Q-Cash Company has a negative relationshipbetween many products/services and revenue. So if the number of products/services increases, the yearly revenue decreased. It happens because, for Q-Cash company, product/service cost is high. So increasing the number of products decreases the gain and vice versa.Many ATM, POS, Merchant systems adopt and maintain are very expensive for a fin-tech company in Bangladesh.

Again, the VIF analysis gives a less than one value (0.25), which indicates a high co-linearity exists among the associated independent variables; here, the product/service of Q-Cash company are the independent variables.The products/services of Q-Cash are ATM management, POS(Point of Sale), Merchant system, Debit card, and Credit card system, Islamic Credit management system. All these services are highly co-linear and proportionately related. All these services are closely associated with each other. If the number of debit card or credit card holder increase the ATM

services, POS services also grow. If the number of card-holders is reduced, the ATM services, Point of sale services are also hampered, and the frequency of these services also decreases. In this way, the Merchant system and the Islamic Credit Card Management system service are closely related to Debit cards, Credit Card, ATM services, and POS services. If one of the service users are increases or decreases, other services proportionately respond with this change.

For the second company,"Aamra Product," I use correlation coefficient and regression analysis tests. Here correlation coefficient is positive, which indicates a positive relationship exists between the variables. So the revenue of the year 2019 and the revenue of the year 2018 have a positive relation.So the Sale of equipment, Sale of service, Sale of software, and Sale of Bandwidth are positively interrelated

But the value of R^2 is less than one (0.090702), which means revenue of the year 2019 and year 2018 are hardly related. Again t-test gives a positive result indicatingpayment of the year 2019 andincome of the year 2018 are linearly related.

Again I apply the regression analysis test for the Sale equipment of Aamra products and the revenue of Aamra products. Here regression analysis indicates a positive relationship between the Sale of equipment and the yearly income of Aamra products. So if the Sale of equipment increases, the annual revenue is also increased.

From the above discussion, we see that the tech- company performsexcellently in our country. So the prospect of a technology-based enterprise is very appreciable and prosperous in Bangladesh.

7. Conclusion

The Prospect ofa technology-based Enterprise in Bangladesh,besides its problem,is growing day by day.Our people,especially village people, knowing about technology.It is a significant achievement.Our Government takessome critical projects to build a technological nation.One of the most popular projects is "Digital Bangladesh." Our software export sector, IT industry, use of technology in the education sector is highlyappreciable. So our technology-based entrepreneurship performs very well and earnsexcellent revenue every year. Here I analyze two tech- company's annual reports, which express that tech companies are functioning very well in our country. Shortly, this technology-based entrepreneurship achieves great success and makes Bangladesh a prosperous countryin the world.

REFERENCES

[1] Acs, Z. J. (2010), "Entrepreneurship and economic development: the value of backwardness, Annals of Innovation & Entrepreneurship," 1:1, DOI:10.3402/aie.v 1i 1.5602.

[2] Aparicio, S., Urbano D. & Audretsch, D. (2016). "Institutional factors, opportunity entrepreneurship, and economic growth: Panel data evidence." Technological Forecasting and Social Change, Volume 102(January): 45-61.

[3] Arif, Md. Zahir Uddin (2016), "Using of 7Ps of Booms and Bitner as Controllable Tactical Marketing Tools: An Exploratory Study on Selected Super Shops in Bangladesh", International Journal of Trade and Commerce-IIARTC, 5(1): 12-29

[4] Audretsch, D., Heger, D., Veith, T, (2015), "Infrastructure and entrepreneurship." Small Business Economics, 44(2): 219-230.

[5] Bailetti, T. (2012), "Technology Entrepreneurship: Overview, Definition, and Distinctive Aspects." Technology Innovation Management Review, February 2012: 5-12.
[6] Bird, B. (1998), "Implementing entrepreneurial ideas: The case for intention." Academy of Management Review, 13: 442-453.
[7] Birkinshaw, J. (2016), "The three preconditions for an entrepreneurial society." Harvard Business Review August.
[8] Carter, S., & Rosa, P. (1998), "The financing of male and female-owned businesses." Entrepreneurship and Regional Development, 10: 225-241.
[9] Chowdhury, M. (2001), "The emerging Women Entrepreneurs of Bangladesh." FBCCI Journal, Volume 2(5-6): 2-4.
[10] Chin, W. (1998), "Issues and opinion on structural equation modeling." MIS Quarterly, 22: 7-16.
[11] Davidsson, P. (2008), "The entrepreneurship research challenge." Northhampton, MA; Edward Elgar Publishing, Inc.
[12] Howell, k. E. (2013), "Introduction to the philosophy of Methodology." London sage Publications.
[13] Iguenaga C. M. (2006), "Statistical Estimation Basic statistics and probability." 147-160, First Ed.
[14] Irny, S.I. and Rose, A.A. (2005), "Designing a strategic Information systems planning methodology for Malaysia Institute of Higher Learning(isp—IPA)." Issues in Information system, volume VI (1): 2005.
[15] Paskhi, A, (1993), "Research Methodological predisposition and Theory." Academy of Management Review, 18(2): 227-268.
[16] Qureshi, M. M. (2020), "Pradhan Mantri Kaushal Vikas Yojana- Entrepreneurship Skill Acquisition Through Education." Entrepreneurship in Modern India: Emerging Issues & Challenges, Anu Books, pp: 151-163.
[17] Sayburn, P. (2016). "How Entrepreneurship can drive the fourth industrial revaluation." Global manufacturing February, 4.
[18] Tasneem, Sara (2020), "Role of Entrepreneurial Activities to Accelerate Socio-Economic Development: A Study on Small Scale Shoe Industry at Bhairab in Bangladesh." International Journal of Trade and Commerce-IIARTC, 9(1): 139-147
[19] Zerbinati, S., and V. Souitaris (2005), "Entrepreneurship in Public Sector: A Framework of Analysis in European Local Governments." Entrepreneurship and Regional Development:An International Journal 17: 43-64.
[20] Official website of Q-Cash: www.qcash.com.bd.
[21] Official website of Aamra Product: www.aamra.com.bd.