# Business Case Study

*Graded Assignment*
*CSE: 4807 IT Organization and Management*
*Department of Computer Science and Engineering*
*Islamic University of Technology*

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February 10 2023

# Introduction

The assignment consists of comprehensive business case studies on the challenges of an entrepreneur leading a software firm that outsources software products to foreign countries. In the following sections, each challenge is treated as a separate case study and will be approached by breaking down into the simplest factors, analyzing the problem, conducting the necessary background study, inferring the business needs of the problem, proposing a solution(s) to the problem along with a structured methodology on implementing the proposed solution(s), evaluating the outcome, and concluding with some remarks that will direct decisions in the future. Each section might include optional passages of field research conducted on that particular topic to enhance the reliability of the study. The recommendations proposed for each challenge will focus on a data-driven approach along with making the least number of assumptions. Both the recommendation and implementation will be revalidated by an objective evaluation framework to improve the efficacy of the study. The reader will also notice the first case study is more comprehensive regarding the purpose of the section. However, the analysis of the latter case studies excludes the additional redundant texts. Occasional references to previously conducted case studies and external resources are made throughout the paper and the references are enlisted at the end of the paper. Any jargon, business terms, keywords, and definitions encountered in the paper will be explained in both - the paper and the appendix for ease of understandability.

# Case Study-1: The Catastrophe of Economic Inflation

## Problem Statement

While the actual problem statement has already been directly iterated in the question, this section tries to emphasize the visualization of the problem scenario by breaking it down, connecting the flow of events, and summarizing them. The first challenge deals with the consequences of economic inflation for our company. The root cause of the problem, economic inflation, has resulted in two separate challenges – an internal challenge of meeting salary expectations where the 'internal' refers to challenges within the company and an external challenge of fluctuating prices in supply and demand where the word 'external' refers to challenges of the company with other entities. Solving both challenges should suffice for a solution.

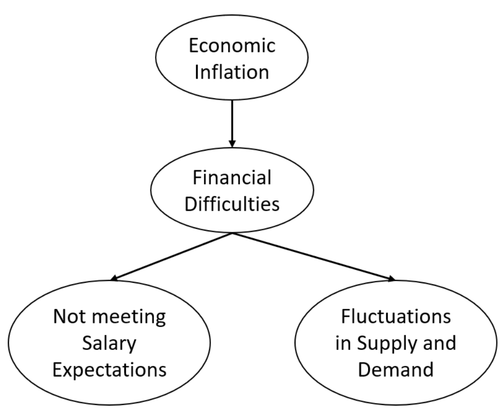


Figure 1: Visualization of the first challenge

## Analysis of the Situation

Economic inflation refers to a continuous increase in the prices of goods and services. The goods are primarily general commodities, such as food items, clothes, and raw materials for industries. The services include transportation services, educational services, hospital services, and so on. Economic inflation is evaluated using a metric called the Consumer Price Index (CPI) [1] which is essentially the rate of change of a unit of goods and services with respect to time. Economic inflation will occur when the amount of money produced in a system exceeds the actual economic growth of the system. Here, a system can refer to a state, country, or the whole world. This results in the devaluation of the produced money.

Let's take an example by introducing a situation where we have a very stable monetary unit called Gold Dollar that stays constant throughout the years. In the year 2020, Bangladesh produced 1 Billion Taka and had an economic growth equivalent of 1 Million Gold Dollars. Hence, 1 Gold Dollar will be equivalent to 1000 Taka. In the upcoming year, Bangladesh produced the same amount of taka but had an economic growth equivalent to 10,000 Gold Dollars. Therefore, 1 Gold Dollar is now equivalent to 100,000 Taka. This devalued the worth of Taka by 100 times. If I am a Bangladeshi resident who owns 1 Million Taka in 2020, then in 2021, it will be equivalent to owning 10,000 Taka. Because in my country, everything will be worth 100 times more. Let's assume the country imports rice at 1000kg per Gold Dollar. But now the price of a Gold Dollar is 100 times more, hence we are forced to import less rice. This results in more demand for rice in our country. Of course, the price of rice will not increase by 100 times as the relationship is not linear but it will increase at a similar rate. Similar to rice, all other general commodities will have an increase in price which explains the devaluation of Taka. The whole discussion brings us to the follow-up question – why would Bangladesh suddenly have a sharp decrease in economic growth? There can be several factors involved including disasters, money laundering, political turmoil, and so on.

While explaining inflation, we came across the term 'demand'. We also heard of the commonly paired term 'supply'. These terms are factors in determining the price of commodities and services. Let's take another example – suppose you have a gem that everyone wants and there is only one such gem in the world. You can ask for any price for the gem and even the richest men will come knocking at your door to pay that premium price to obtain that desired gem. This scenario corresponds to a high demand but a low supply market. This skyrocketed the price of your gem. On the contrary, your friend has a rock – there are millions of it everywhere and nobody wants it. This scenario corresponds to a low demand but high supply market. The product isn't worth anything in this market. But if you take your rock to the Martians where there is no rock from Earth, then the scenario changes to a low-supply market. But if the Martians are still not interested in your rock, it stays as low supply low demand market where the price stays relatively low. Inflation usually affects the supply and demand of any commodity. Imported products have a smaller supply as they cost more to be imported. As a consequence, the demand gets increased due to the unavailability of the product in the market. This occurred in real life when Americans started hoarding paper rolls during the pandemic which resulted in high demand and also increased the price of paper rolls. Changes in supply and demand change the price of a commodity. This creates difficulty in tracking expenses, planning services, and setting prices for the services. Consumers lose reliability at fluctuating service prices. We can imagine the scenario of Netflix – they ask the customers to pay a monthly fee of 5$ for watching their shows. However, their products depend on other commodities which can have fluctuating prices. For instance – the new actor for their TV show is asking for 5 times more money than the previous actor. This created a domino effect resulting in many actors demanding higher wages. This will affect Netflix financially but will they change their subscription rate to 6$ or take some losses? Maybe the price increase will result in many customers quitting Netflix resulting in a more significant loss.

## Background Study

The recent outbreak of Covid-19 has resulted in the harshest economic inflation of the past two decades [2]. Such an unprecedented event took the world by storm and has affected every industry including software firms. Our company is no exception and although we weren't directly affected by it – we faced indirect financial consequences. Upon surveying our employees, we found that around 60% of them failed to meet the basic demand of their families [3]. However, the salaries we offered were sufficient for our employees before 2020. The employees reported 90% salary satisfaction with our offered salaries in 2019 [4] The salary satisfaction rate stayed high during COVID-19 in 2020 and also as late as 2021. However, in 2022, the satisfaction rate dipped low [5] and similar changes have been seen globally across other firms. The plausible causes are – the high inflation rate on general commodities affected the public more after 2020 as the government was funded by foreign reliefs and aids when the pandemic was at its peak. When foreign relief was withdrawn from the country, the heavy inflation affected the general commodity market. The other factor is the savings of middle-class families – which can usually sustain them for one to two years. After the economic crisis took away the savings of the families, the employees started expressing dissatisfaction with their salaries. Our company failed to take keep such demands into consideration during 2022 as the company also went through a period of instability due to financial difficulties. As of early 2023, the company has finally decided the prioritize salary satisfiability of the employees to retain them.

Heavy inflation has a similar impact on supply and demand. Our company has been subscribed to cloud computing resources from Amazon Web Services (AWS) since 2018. However, they increased the rate for each computational node from 12 USD per hour to 14 USD per hour– a 16.67% increase during the pandemic [6]. But due to the increasing demand for cloud computing resources, the rate dropped to 12 USD per hour shortly after the pandemic. However, the heavy inflation affected our economy more, strengthening the US dollar against Taka and thus making us spend around 240 Taka more for the same computational resource per hour [7]. [Previously, 12 USD was equivalent to 960 Taka, now it is equivalent to 1200 Taka.]

## Business Needs

By analyzing the problem we came up with a better understanding of the source of the problem and the driving factors. Our background study clarified all the assumptions we made about our problem and gave us the information we need to proceed with our solution. The business needs can be thought of as a combination of how our problem affects the stakeholders of the company. By delving deep into the business needs, we will try to see how the mentioned problem can be a threat or an opportunity to our company as a business organization. There are several ways to categorize business needs - some use primary and secondary business needs while others classify them as required, desired, and optional. For the sake of simplicity, the business needs in our paper will not be classified.

Not meeting the salary expectations and fluctuation in supply and demand will affect our company as a business organization. However, these two challenges can be thought of as separate sub-challenges due to economic inflation and their business needs will be explored separately. The points related to not meeting salary demands are given below:

- **Retaining Employees:** An employee is an asset to the company and not meeting an employee's salary expectation might make the employee leave the company. This can be detrimental to the growth of the company as it takes additional costs and resources to train new employees. Again, the output generated from experienced employees outweigh the output generated from the newer employees.
- **Employee Motivation:** Demotivated employees take a longer time to develop products which can lengthen product life cycles. Unnecessary delays might make the teams miss the important deadline which can create a recurring effect of demotivation for the employees.
- **Reduced Workplace Creativity:** Creativity is key to generating new ideas and designing products. Due to dissatisfaction with salaries, employees might come up with generic solutions instead of creative ones.

The key business requirement here is **ensuring employee satisfaction** – which can have numerous approaches that will be described in the recommendation section. Dealing with a fluctuating market is challenging and can be thought of as a secondary requirement to this problem as it's difficult to control an external factor. **Stabilizing the supply chain** is easy on paper but tough to implement. **Long-term deals** can be taken from customers to stabilize the demand.

## Recommendations

1. **Supplementary Financial Benefits** The easiest way to increase salary satisfaction is to increase the salary itself. The company is unable to increase the employee's base salary due to economic inflation but might offer other key benefits to our employees that might make the overall job lucrative in the market. Such benefits include post-retirement funds, insurance, and paid leaves.

2. **Work Flexibility** A software firm can operate physically or remotely showing little to know the difference in the productivity of employees. We performed field research on the team leaders of the software firm, HawarIT which revealed that the performance of their employees who are doing remote jobs has higher initial productivity than the employees who work physically. The employees who are working remotely often compensate for missed deadlines for unpaid overtime; something that employees who work physically are reluctant to do. However, productivity decreases after 2-3 months and an enforced 1 day/week in the office can help in boosting back this productivity.

3. **Transparent Accounting** Often the employees make huge demands on the company for increasing their salary. If the accounting of the whole company is transparent, the employee can have a look at the transactions of the company and how they affected the company's revenue as a whole. Transparency might build more trust in the company and increase their satisfaction with the salary.

4. **Individual Benefits** We can create programs that help employees who are financially affected by individually looking at their financial cases and offering loans or long-term benefits to them. Some of them might include – free lunch coupons, interest-free loans, sponsorship of education for their children, and so on.

5. **Penalizing Missed Deadlines** To stabilize the supply of the company, the company should punish both the employees and their suppliers for missing deadlines. The company relies on hardware suppliers for purchasing computational resources. They should directly contact the suppliers to follow stricter deadlines or enforce penalties for not being able to do so. The company also acts as the supplier of products and hence, should also enforce more strict deadlines for their internal employees as well.

6. **Long-term Supply Deals** The recommendation is self-explanatory - supply fluctuations can be easily avoided if the company makes long-term deals with its suppliers at a constant rate.

## Implementation

- Every employee will have additional 5% of his/her annual income saved for post-retirement
- The company has partnered with RealLife Health which will provide health insurance of up to 30,000 Taka for its employees per month
- Employees are given 6 months of paid maternity leave and 3 months of paid paternity leave
- Employees can work from home for up to 4 days a week and has to work physically for at least one day a week
- The company's accounting has been made transparent and will be available on the website.

- Employees struggling to meet their basic needs can report to the company to get interest-free loans of up to 50,000 Taka in cash
- Employees struggling to meet the educational cost of their children will receive sponsorship benefits from the company
- Suppliers of all basic commodities – food, water, gas, and suppliers of hardware will now follow strict deadlines. An employee will be assigned to coordinate the suppliers on these deadlines
- Both suppliers and employees will be penalized for missed deadlines
- Employing software development lifecycles which are flexible to customer requirements.
- AWS resources will be now purchased at an annual subscription rate. Amazon will also be contacted for reliable supply and the company is willing to pay a premium for the availability of its resources.

### Evaluation

Our proposed recommendations and implementation might be good on paper but needs real-life data to prove their validity. Hence, the implemented steps need to be evaluated periodically. The first evaluation metric that we will propose is the employee satisfaction rate. When several employees are randomly surveyed on their satisfaction with their job, they will provide a yes/no based answer. We can calculate the satisfaction rate using:

$$Employee\ Satisfaction\ Rate = \frac{\#\ of\ employees\ satisfied\ *\ 100}{\#\ of\ employees\ surveyed}\ \%$$

Higher employee satisfaction rate implies that our first sub-challenge has been solved. For our second sub-challenge, we need to find a metric that can encapsulate the fluctuation of supplies in a time period. We can calculate it by summing the total delay of supplies divided by the time period.

$$Supply\ Fluctuation = \frac{\sum Supply\ Delay}{Time\ Period}$$

Lower supply fluctuation indicates a stable supply chain. It is difficult to evaluate the customer demand. Simply tracking the changes requested by a customer for each product can be one way of defining such a metric. The higher the average number of changes, the more the customer demands fluctuate.

$$Average\ Changes = \frac{\sum \#\ of\ changes\ per\ customer}{\#\ of\ customers}$$

## Case Study-2: China enters the Market

### Problem Statement

There is nothing to visualize for this challenge. Our company is simply facing competition from China. The third problem statement has a visualization of customer retention where we are facing competition from another company. The reader can refer to that diagram and think of the "Another Company" as "Chinese Company".

### Analysis of the Situation

China is currently the largest manufacturer of products along with the largest exporter of commodities around the globe. China has held the top spot for a decade by providing human resources at cheaper wages, creating a manufacture-friendly environment, constructing efficient supply chains, being able to meet extreme deadlines, and so on. Chinese competition has been feared throughout the globe – especially in commodities like electronics where Chinese manufacturers can replicate an electronic product with similar functionalities at a lesser price.

To understand the tenacity of Chinese manufacturers, let's have a case study of the Rubik's cube market. The Rubik's cube is a toy invented by Erno Rubik and the cubes were first sold by a company called Pentangle Puzzles in the UK [8]. The company was licensed by Rubik himself. To increase the popularity of the puzzle, the cube was internationally released allowing many companies to independently replicate the puzzle. As the cube gained popularity, companies started to look for ways to minimize production costs to maximize profit. Most such companies relied on China where the people are adept in manufacturing sophisticated products like electronics; replicating Rubik's cube and similar puzzles wasn't as challenging to them. After years of outsourcing the products to China, Western companies realized that many Chinese companies have already entered the market and offering the same toys at a much lower price. Retailers began to contact these Chinese brands directly to buy their cubes. Such Chinese products became more popular among users due to the price being as less than half of the price of non-Chinese brands.

To get a better understanding of the dominance of Chinese products in our local market, we conducted field research with a company called CubeNation [9]. We interviewed the staff on CubeNation on their Facebook Page where they revealed that around 90% of their annual purchases in 2022 have been made by selling cubes Chinese-branded cubes. With a few exceptions, all of their mass-produced cubes are manufactured in China. Some of the Chinese brands dominating the market are – YuXin, DianSheng, Moyu, and so on. The staff gave us a couple of reasons for this surge in Chinese products – firstly, the original Rubik's cube cost around 10$ in the United States. Combined with the shipping cost and taxes, the cube costs more than 1500 Taka in Bangladesh. The original Rubik's cube barely improved throughout the years making it slow, noisy, and tough to turn. The Chinese brands however offer faster cubes with better materials and improved technology like using magnets to align the cubelets in their correct position. Surprisingly such a Chinese cube costs half the price of the original Rubik's cube. A customer will buy a better cube by spending lesser money.

The study we conducted so far is not related to software firms and one might argue that Chinese software firms do not pose the same level of threat. However, that is not the case. We conducted another field study with a company called HawarIT [10]. The company outsources software products to the Dutch Government and made long-term deals with them. In the last couple of years, the company faced immense competition from Chinese software firms that offered similar products at a reduced price. However, there were many obstacles faced by the Chinese firms – the language barrier, the unreliability of the firms, and also the quality of their products. We shall have a look at the strategies employed by companies like HawarIT when proposing a solution for this challenge.

## Background Study

Our company primarily outsources software products to American companies which include – other software firms, pharmaceuticals, retail, and so on. We usually make short-term deals with the company for the products along with offering an on-demand update for the products. Recently, the well-established Chinese conglomerate called Tencent has started contacting American firms to gain long-term business deals offering their software products as a service instead of a single purchase. A different business model with little investment has attracted many of our customers; some terminating the already established contract made with our company. Upon surveying [11] five of the companies that we are currently contracted with, we found that four of them have been directly approached by the other software firms offering equivalent deals. Large conglomerates also tend to take losses initially to gain market dominance. Our software firm hasn't changed its marketing strategy to compete with these Chinese firms and we might end up losing some of the short-term deals if we do not employ a different strategy.

## Business Needs

Disregarding the Chinese competition might affect our company negatively and some of the points we need to consider includes:

- **Loss of Revenue:** If the Chinese companies manage to take a majority of our customers, our stream of revenue might dry up quickly resulting in our company taking huge losses in the upcoming years.
- **Product Reliability Concerns:** While competing with Chinese companies to produce at a cheaper price, our company might sacrifice the quality of our product resulting in poorer products at a cheaper price. This might affect our customer loyalty and brand image as a company.
- **Longer Idle Periods:** As stated before, our employees face idle periods when a team hasn't been assigned any work. If we lose most of our work to Chinese companies, the idle periods will be elongated which will result in laying off the employees. This will hamper the growth of the company.

The key business requirement here is to employ strategies for direct or indirect competition with Chinese software firms. The background study revealed a head-to-head competition is unfavorable for our company and most other software firms in general. Hence, we must strategize **indirect competitive benefits** for our customers.

## Recommendations

1. **Cutting Down Cost:** Heavily reducing product costs will help us offer a better deal to our customers. However, implementing this has proved to be difficult but based on the outcome of the previous challenge, the office space can be reduced to save cost.
2. **Improving Customer Relationships:** Chinese companies have communication barriers with foreign companies. We can capitalize on this opportunity by investing more time in understanding the requirements of our customers, providing product feedback, and so on. Better communication skills with our company's representative and establishing ourselves as a customer-focused brand might be the factor that gives us an edge over the Chinese brands.
3. **Quality Assurance:** Instead of competing with Chinese brands with the price of our products, we would simply offer better quality products by assigning more engineers to the quality assurance team and incorporating experience quality assurance engineers for larger programs.
4. **Strategic Partnership:** Long-term deals and partnerships can be made with the customers to avoid direct competition with Chinese software firms. While creating such long-term deals the company should ensure that a good portion of the production cost has been paid upfront and the deal is non-terminable.

## Implementation

- As more employees are opting to work from home, the redundant office space will be advertised for rent from next month. This decision will save expenses of the company and be the source of additional revenue.
- Our company's representatives will be trained to improve their communication skills and to establish our company as a customer-focused company to the clients.
- Before developing products, more focus will be given to customer requirements and agile software development models will be incorporated instead of ones with fixed requirements.

- Customer feedback will be taken on our products on a weekly or monthly basis. The feedback will be constructed and conducted case-wise depending on the product and the customer.
- 4 new employees will be employed on the quality assurance team
- One senior advisor will be assigned to the quality assurance team
- Marketing strategist will focus on designing long-term deals for our customers which might include product development with maintenance and product updates i.e. our company will deal with the complete software development lifecycle.

### Evaluation

It is very difficult to evaluate if our implemented strategies gave us a competitive edge over the Chinese software firms. We cannot simply survey our customers and ask them if they made purchases from Chinese firms. However, we can monitor the competing Chinese companies and track their annual revenue, profit, cash flow, and so on. If internal news can be obtained from companies that made previous purchases from us, then we can infer if they have any current business deals with Chinese software firms. There is no straightforward evaluation metric for this scenario and our company must rely on experience in order the validate the undertaken steps.

## Case Study-3: Retaining our Customers

### Problem Statement

The problem is simple - once a customer made a purchase in our company, it challenging to make another purchase from him. Maybe another company gave better offers to him and while making purchase for the second time, he will consider that company instead of ours. We should also consider the scenario where the customer doesn't wish to make any purchase at all after his initial purchase.

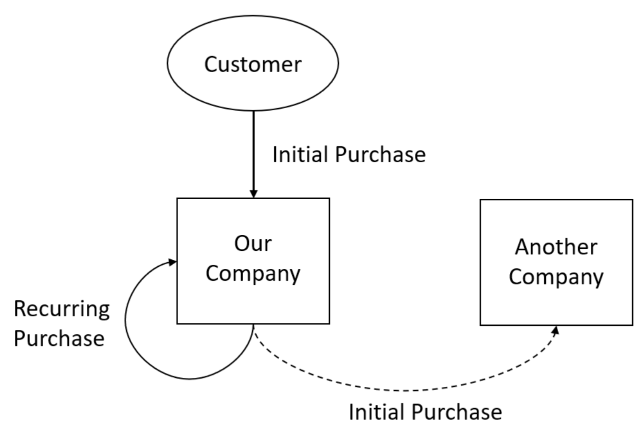


Figure 2: Visualization of the third challenge

### Analysis of the Situation

Customer loyalty is the driving force of continuous market dominance of a company in any particular sector. Customer loyalty refers to customers making repeated purchases from the company which can be either goods or services. There are many factors involved in retaining customers, some of which include the public image and reliability of the brand, quality customer service for a long period, convenient experience while making purchases, and so on. Customer loyalty is a long-term outcome and companies employ various strategies to ensure their customers make repeated purchases. Let's have a look at some of these strategies.

Online retailers like Daraz employ customer loyalty points that accumulate when a customer makes repeated purchases. A similar strategy is seen in other apps like Bkash and physical retail superstores like Agora, Shopno, Meena Bazaar, and so on. Customers can use these loyalty points to make purchases later on. The psychological reasoning behind using loyalty points is that when customers make larger purchases, they have a feeling that they 'earned' something. This sensation is similar to gambling where if the player wins something, he feels like he 'earned'. We are putting more emphasis on the word 'earned' because, in reality, the player had to pay a certain amount of money to play the game. Maybe he had spent 1000 USD on purchasing the tokens and won merely 100 USD. But the fact that he won a small amount of money will make him play the game again and again. The casino strategists know this and they employ a strategy that gives the players a small reward when they play for a long time. The reward shouldn't be too high to satisfy the players but should be high enough to motivate them to play the game again. Video games also use a similar yet opposite strategy – often making the progression more difficult when you are close to the goal to make you play again and again.

To summarize the discussion on customer loyalty – companies can retain customers in two major ways - by genuinely creating better products and services or by making them feel like they are getting the better end of the bargain by purchasing their products and services. These things need to be coupled with consistency i.e., whatever they provide to the customers shouldn't change abruptly; consistency is the key. This brings us to our second proposition – why do we need customer loyalty? Surely, if our company is doing well enough then we can attract more people and gain more profit eventually. Let's look at a case where customer loyalty has outshined every other company.

In the smartphone industry, Apple has dominated the market for nearly a decade and made it the first trillion-dollar company in the world. But looking at the numbers, we find merely 26.4% of smartphone users have an iPhone while 27.8% use Samsung phones in 2021 [12]. Samsung should have a better market dominance than Apple. That should also imply that Samsung should make nearly as much profit as Apple, if not more. However, the reality is far from our assumptions - Samsung is and has been struggling to keep up with Apple for years – primarily due to their unreliable customer base. People who use iPhones rarely switch to other smartphone brands while Samsung users try different Android phones. Android is the operating system of Samsung and many other smartphone brands like Oppo, Vivo, Sony, Motorola, Google Pixel, and so on. The option to choose other brands decreases the loyalty of Samsung users while Apple with its closed ecosystem is better at retaining its customers. But who makes more profit? While it's tough to compare the profit Apple makes on phone sales only with the profit Samsung makes on phone sales only, we can have a different angle and look at the stores where applications are purchased. Apple users tend to pay a lot more than Android users; most applications make more revenue from the Apple store even though there are 56% fewer Apple users than Android users. Apple tends to make more annual profit than Samsung although both Apple and Samsung have more products other than smartphones. But we can infer that customer loyalty is a key role in creating Apple's dominance in the smartphone industry.

## Background Study

Looking at our recent purchases from 2018-2022, we found that only 12% of our purchases come from recurring customers [13]. We performed follow-up research by surveying the companies that didn't make a purchase from our company for the second time. We found that around 60% of these companies contacted other companies for software products [13]. The survey also revealed some of the reasons behind our customers not making a second purchase; some of them being – unsatisfactory product quality, untested products which are not suitable for deployment, maintenance issues, and so on. However, to get a more accurate response from our customers, we should conduct a more detailed background study such as an interview with the companies that didn't make recurring purchases. However, based on the current study, we can safely conclude that our company is facing difficulty in retaining customers and the inability to do so might prevent us from capitalizing on opportunities.

## Business Needs

Numerous surveys indicate customer loyalty to be a driving factor of an organization's stability and profitability. The benefits that customer loyalty might bring to our business are:

- **Higher Revenue from Software Purchases:** Our company often faces idle periods which can be prevented if customers return to us for more software purchases; ideally, if they are satisfied with our previous products and asked us to develop new products for them as a long-term deal. Our previously conducted survey on recent purchases revealed that we can boost our sales by up to 90% if every customer made a recurring purchase which would generate a huge stream of revenue.

- **Revenue from Maintenance:** Software firms can earn from 15% to 30% of their revenue from software maintenance while also spending a majority of the product lifecycle on maintenance [14]. Our company neglected software maintenance which can an untapped source of income.

- **Marketing Cost Reduction:** Companies with a loyal customer base rarely need to make aggressive marketing schemes. Companies like Apple rarely invest in marketing as their customers are aware of their new products through launch events. Customer loyalty will make it easier for our company to get more purchases along with saving a good amount of money to market our brand.

- **Improved Brand Image:** One of the most important intangible assets of our company is the brand image which is directly correlated to customer loyalty. **Customer retention** strategies are common in every business organization. Our primary requirement is to develop such strategies which will be elaborated on in the recommendation section.

## Recommendations

1. **Quality Assurance:** The recommendation has been proposed in the second case study.

2. **Improving Customer Service:** This includes having a better understanding of the requirements of our customers, providing better feedback, and so on. Similar topics have been described in previous case studies.

3. **Personalizing Customer Service:** The company can take steps to make it easier for customers to make repeated service. This can include keeping individual profiles of the customers and approaching them with recommended products that they might purchase from our firm.

4. **Maintenance Service:** Maintaining the software product is a great way to ensure customer satisfiability which will boost customer loyalty. Strategies can be employed to lure customers into the company's maintenance plans; the most prominent strategy being a free trial period followed by a paid period. Companies such as Spotify use this form of subscription strategy to lure customers into taking periodic subscriptions from them.

5. **Strategic Partnership:** The recommendation has been proposed in the second case study.

### Implementation

The implementation plans for the second case study include quality assurance plans, customer service and feedback plans, and so on. The reader can refer to those plans before consulting the implementation plans for this case study.

- Customers will be tracked individually by one of our marketing employees and have a separate profile in our database.
- Recurring customers will be offered discounted deals, long-term deals, and reduced maintenance fees.
- The company will offer free maintenance of their software products for one year with annual maintenance fees for the upcoming years.
- Representatives of our company who communicate with the customers will be trained for building relationships with customers along with the necessary communication skills.

### Evaluation

Calculating customer loyalty is tricky as there are a number of factors involved. But the most direct approach is to calculate the number of customers making recurring purchases; the higher being more loyalty.

$$Recurring\ Purchase\ Ratio = \frac{\#\ of\ recurring\ purchases}{\#\ of\ purchases}$$

Another metric we can consider is the number of purchases by a single customer. If a customer makes multiple purchases that means he/she is more loyal to our company. Again, for this metric, the higher number indicates more loyalty.

$$Purchases\ Per\ Customer = \frac{\#\ of\ purchases}{\#\ of\ unique\ customers}$$

## Conclusion

The case studies build up on the requirements, business significance, solution, and evaluation of the challenges mentioned in the general problem statement. We believe the documentation will be a comprehensive guide to the reader in dealing with similar problem statements.

## References

[ 1 ] https://en.wikipedia.org/wiki/Consumer_price_index

[ 2 ] https://www.bb.org.bd/pub/research/policynote/pn2105.pdf

[ 3 ] Dummy reference to a survey conducted by our company on meeting the basic demand of the family of employees in 2022

[ 4 ] Dummy reference to a survey conducted by our company on employee salary satisfaction in 2019

[ 5 ] Dummy reference to a survey conducted by our company on employee salary satisfaction in 2022

[ 6 ] Dummy reference to price rate of resources offered by Amazon Web Services

[ 7 ] Dummy reference to our accounting sheet from 2022

[ 8 ] https://en.wikipedia.org/wiki/Rubik%27s_Cube

[ 9 ] https://cubenationshop.com/

[ 10 ] https://www.hawarit.com/

[ 11 ] Dummy reference to a survey conducted by our company on our customers regarding Chinese companies

[ 12 ] Dummy reference to smartphone share distribution

[ 13 ] Dummy reference to our company's recurring customer survey conducted on 2022

[ 14 ] Dummy reference to the time spent and income generated by software maintenance

# Appendix

**Customer Loyalty:** Tendency of a customer to make recurring purchases to the same company

**Economic Inflation:** Continuous increase in the prices of goods and services

**Software:** A computer program with a function or purpose

**Software Development Lifecycle:** Also called software development process; sequential steps for complete design, development, and maintenance of software products.

**Software Firm:** An organization that deals with developing software

**Strategic Partnership:** Making deals with other companies to gain long-term benefits

**Supply and Demand:** Amount of good or services produced and desired

**Quality Assurance:** The act of validating the quality of a product