

Internship Report

On

Strategic Analysis of Elevator Industry at Creative engineers Ltd



Submitted to:

Islamic University of Technology

in partial fulfillment of the requirements for the degree of
BBA in Technology Management (BTM)

Submitted by:

I understand that my final report will become part of the permanent collection of the Islamic University of Technology BBA in Business and Technology Management Program. My signature below authorizes the release of my final report to any reader upon request

Anika Faiza

Anika Faiza Binte Hasan

ID:170061033

Session: 2021-2022

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23rd April 2022

Shobnom Munira

Assistant Professor

Business and Technology Management

Islamic University of Technology

Subject: Submission of Internship Report.

Respected Sir,

I hereby submit the Internship report titled "Strategic Analysis of Elevator Industry at Creative engineers Ltd" which is a part of the internship program. It was a great achievement on my part to work under your direct guidance.

I did my hardest to portray the state of the firm and reflect on my own experience at the company while writing this report. Working at CEL has provided me with a tremendous chance to learn about corporate field operations while also allowing me to improve personally. Working there and completing this report with your direction was a fantastic experience. I will be ready for any explanation if necessary.

I would be grateful if you could please accept my report and offer me any professional advice or criticism you may have. If you consider this report informative or beneficial in any way, it will be a big success for me.

Sincerely Yours

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Declaration

I, Anika Faiza Binte Hasan, a student of the Department of Business and Technology Management of the Islamic University of Technology hereby declare that I have prepared this report on Creative Engineers Ltd. by myself with the guidance provided by my supervisor Assistant Professor Ms. Shobnom Munira. I have not breached any copyright purposefully. The work is authentic to the best of my knowledge. I further declare that the report was not submitted to any other party or institution for any degree of the certificate.

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Acknowledgment

To begin with, I would like to thank Allah Azzawajal, for helping me from the beginning to the end of my internship period.

I want to extend my supreme gratitude to the Islamic University of Technology for providing such a huge opportunity for their students to broaden their attitude toward how the corporate world looks and for organizing the whole internship program. Their effort to make sure that the whole internship program achieves its desired goals is highly appreciable.

I would especially like to express my sincere gratitude to my academic supervisor Ms. Shobnom Munira for the care, support, and guidance she provided me the whole time.

Most importantly, I would like to thank my work supervisor Md. Nazamul Islam Nazim, who has been teaching, supporting, and guiding me till now. I am also highly indebted to Mr. Arman Hossain for his constructive criticism throughout this whole time.

I also want to thank my colleagues who worked alongside me. Their patience and openness, have created an enjoyable working environment for me.

Lastly, I want to express my gratitude to my family and friends for their support in all parts of my internship and for allowing me to spend all of my time at work.

Thank you

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Executive Summary

This internship report is based on a three-month internship that I had completed in Creative engineers Limited under the Planning and Strategy department from November 1st, 2021 to January 31st, 2022 as a part of my course curriculum for the 9th semester of BBA in technology Management program on the Department of Business and Technology Management, IUT. Though this was not the first internship of my career it was the first offline job of my life. I am glad I have started my career in the electromechanical industry which is completely relevant to my undergrad studies.

The report focuses on the research that the company's planning department does to keep track of the market and global industry with the goal of business expansion. In the next portion of the report, the internship's result is reviewed in detail. My job at the firm mostly consisted of associating the analyst team with processing data for various objectives. I had to go through a series of contacts with other corporate personnel to correctly draw up the records. My ability and level of communication were substantially improved as a result of these measures. I gradually gained an understanding of the procedures that a company's sales force must follow. By assessing and evaluating internal and external issues while preparing for the organization's development, prosperity, and advancement, the Planning & Strategy department plays a crucial part in the company's success. They do play an important role in CEL. It was an amazing pleasure for me to be a part of this team and collaborate with them.

This report includes a detailed analysis of the company, its history, timeline, milestone, product line, and analysis of the company to measure its level. There is industry analysis based on live data. Industry analysis is considering the current industry growth and size as well as current trends. Using this trend there are forecast about the expected growth within ten years.

CEL gave me the work experience I required to put my studies into practice, enhance my leadership abilities, and gain a competitive advantage in my career path. In this report, I've attempted to capture all of my experiences as well as how my three-and-a-half-month internship has impacted my work and personal life.

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Introduction

Introduction

Background

I had my internship at an electro-mechanical engineering firm named Creative engineers ltd which is the sole distributor of one of the best elevator brands in the global elevator industry, Schindler. CEL provides import, installation, servicing, and modernization of Schindler products. These products are suitable for almost every type of building requirement worldwide. Schindler specializes in the latest-technology engineering, as well as mechanical and microprocessor technology products designed and rigorously tested for the highest level of safety, comfort, efficiency, and reliability. Currently, they have done business with Airbus by supplying their helicopter first time in Bangladesh. This company also has their paper mill which is Creative paper Mill. I have mostly worked in the planning and strategy department with the analyst and marketing team. There is a total of 15 departments. I used to work in the planning and strategy department which was directly under the supervision of the company's COO and the board of directors.

Internships are becoming more and more crucial in terms of enhancing our education all the while assuring future jobs. They provide us an understanding of how it is to work for a living, as well as how our chosen industry operates and what it takes to succeed. Through my three-month-long internship, I had quite a knowledge about the elevator industry. This company tops the list here. Experts and cutting-edge technologies shape national infrastructures. CEL (Creative Engineers Ltd.) is a private limited engineering company with many divisions and exclusive distributorships. CEL provides both commodities and services in the fields of mechanical, electrical, and marine engineering, allowing national frameworks to be shaped. I am proud to be an employee of an organization that is one of the key components in the development of the nation's urban infrastructure.

Main Purpose of this program

- Students shall receive an insight into the current economy.
- Get hands-on experience in a professional workplace.
- Make a correlation between theory and experience.
- Organize the job description's specific details.

- Completion of all criteria for the BBA program.

The report is the outcome of a three months long internship at Creative Engineers Ltd., and it was written to meet the University's Business and Technology Department's criteria. It includes details on the firm and its goods, as well as details about the sector in which it works.

Objectives of the Internship

The internship's main goal is to develop a complete grasp of workplace interaction, as well as to conduct tasks and engage themselves in the work atmosphere. In some ways, it was more about understanding the practical implications of all the research and ideas I had learned thus far. This would assist me in paving the road for academic and also self-development.

The particular goals are outlined here, in addition to the basic aims :

- To fulfill the curricular requirement for the Bachelor of Business Administration in Technology Management program of IUT.
- To gain experience in the workplace, which will lead to the development of confidence, tolerance, diplomacy, and practical knowledge.
- To gain theoretical information and put it into practice in the job.
- Interpersonal, management, and communication skills must be developed.
- To devise potential techniques for gaining a competitive edge.
- To provide beneficial features to the company as a valued asset

Company Profile

Name of the Firm	CREATIVE ENGINEERS LIMITED
Head Office Address	Amin Court Bhaban (1 st , 2 nd & 3 rd Floor), 31, Bir Uttam Shaheed Ashfaqus Samad Sarak,(Previous 62-63, Motijheel C/A), Dhaka - 1000, Bangladesh.
Corporate Status	Limited Company
Registration No.	C-84071246 of 1980-1981
Trade License No.	02037850
VAT Registration No.	19011006294/190101
Taxpayers Identification No.	163630913384 (Taxes Circle-079. Taxes Zone-04 ,Dhaka)
Telephone	+88-02-9561926, 9571410-11
Fax No.	+88-02-9561927
E-mail	creative@cel.com.bd, marketing@cel.com.bd
Website	www.cel.com.bd
Bankers	<ul style="list-style-type: none"> • Dutch Bangla Bank Ltd. Motijheel Foreign Exchange Branch Zerin Mansion,55,Motijheel C A,Dhaka-1000 A/C No: 1051108261 • The Premier Bank Ltd. Motijheel Branch, 81, Motijheel CIA, Dhaka-1000 A/C No: 10811100014006 • MutualTrust Bank Ltd. Principal Branch,7-8,Motijheel C A, Dhaka-1000 A/C No:0210003653
Associates	<ul style="list-style-type: none"> • Creative Paper Mills Limited • Mercantile Bank Ltd. Global Insurance Co. Ltd. • Premier Leasing& Finance Ltd.

Schindler

The Schindler Group was founded in 1874 in Switzerland. Schindler has evolved from a small machine maker to a multinational elevator and escalator company throughout its 145-year existence. It has molded the industry, set best practices as a mobility provider, and thrived as an employer in a fiercely competitive environment context along the way. This is a global corporation that makes escalators, moving walkways, and elevators all over the world. Lifts and escalators are manufactured, installed, maintained, and modernized by Schindler in a variety of buildings, including residential, commercial, and high-rise structures. Schindler also offers replacement

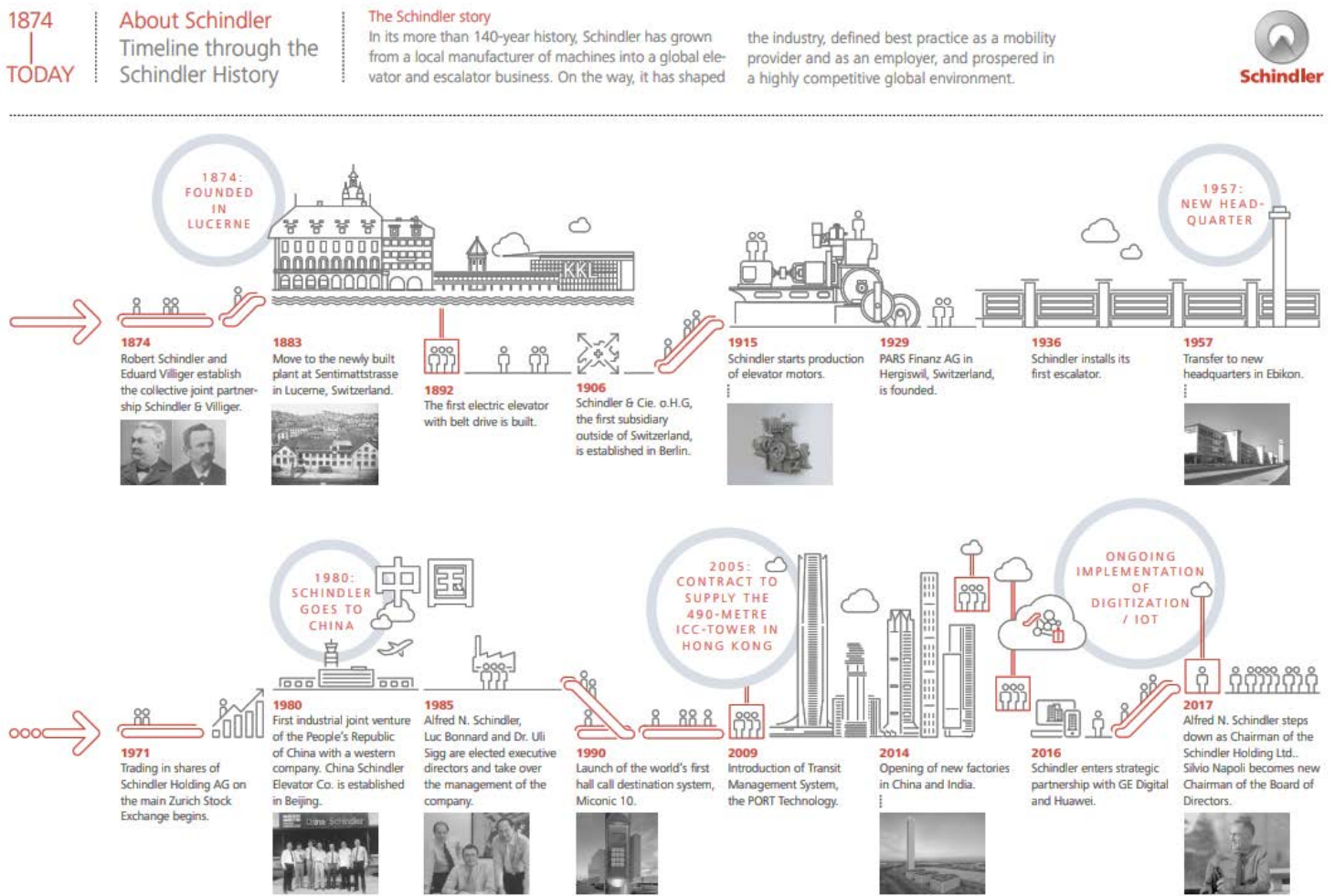


Figure 1. Schindler Timeline

parts, after-sales support, and maintenance. More than 69,000 workers in more than 140 countries are working for Schindler. They have more than 1,000 branch offices across the world, eight

manufacturing locations, and six R&D centers to service their products. Brazil, China, Slovakia, Spain, Switzerland, India, and the United States all have production plants. Schindler Holding Ltd is the holding company for the Schindler Group's activities and subsidiaries.

Schindler Media Network

The Schindler Media Network is a new digital communication and advertising platform for inside elevators in residential and commercial buildings. This was recently unveiled by Schindler. Building owners and marketers may utilize the platform to leverage elevators as a new communication and advertising channel. Schindler will work with Adonmo to sell the advertising that the solution promotes.

The Schindler Media Network will be provided to building owners as an end-to-end solution, including installation and network management. Furthermore, material may be quickly uploaded and updated, enabling entirely digital building communication that can be planned or broadcast in real-time.

Adonmo will integrate Schindler Media Network into its already known booking platform and booking processes, allowing advertisers, media agencies, and other companies who want to target audiences in office and residential buildings to book this new category of in-lift advertising through standardized processes.

Components of an Elevator System

Elevators have the following components

Elevator Car

It is the vehicle that carries passenger or goods and travel between the different elevator stops. Schindler provides different types of material for each surface. We provide stainless steel, glass wall, wood wall for the surrounding; steel floor, robber, marble as the floor type.

Shaft

The shaft is the passage through which the elevator travels from floor to floor.

Guides

They provide ways for traveling of cabin and counterweight. It is also necessary for avoiding vibration and providing a fixed path.

Counterweight

For the steadiness of the elevator car and to provide ease in functioning counterweight is used. In the beginning, when there is no load, the counterweight is equal to the weight of the elevator car. Later on, half of the total lifting capacity of wight is added in counterweight.

Machine Room

A machine room is a place to store different types of components necessary for an elevator system. Such as PCB, motor drive, governor, etc. PCBs are used for controlling the action and reactions of lifts during lift calls. Motor drive gives power to the lift car. Some emergency landing devices (ELD) are also stored.

Governor

It is like a fuse in an electric device. During emergency cases or failures, it acts on its own and applies break.

Buffer

This absolves kinetic energy. In case of cable is cut off and the lift falls off, then the lift car falls on the buffer and reduces its speed before falling to the ground. It is placed at the bottom of the shaft.

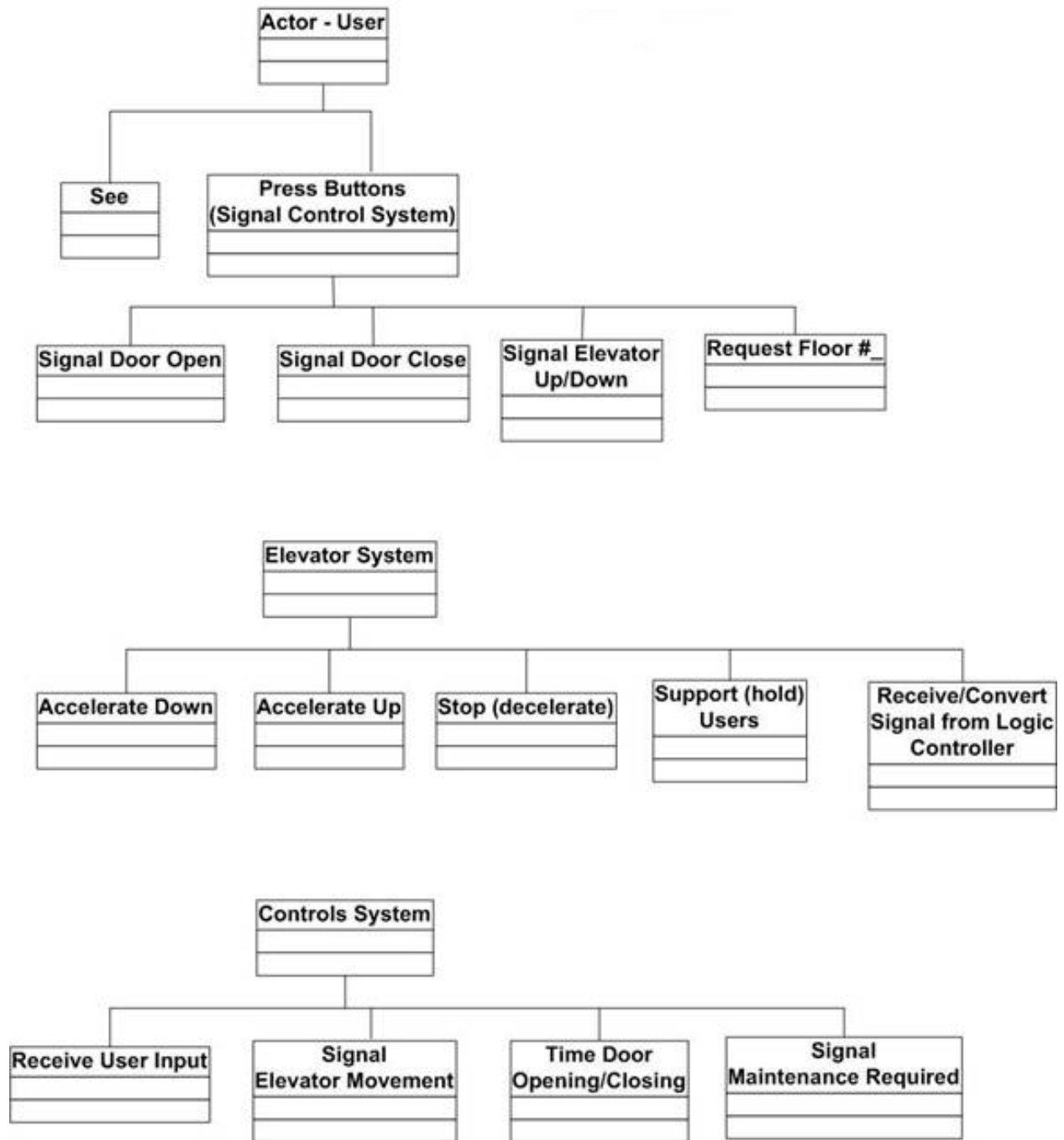


Figure 2. Elements of lift design

Creative Paper Mill

Creative Paper Mills Limited (CPML) began its adventure in June 2005 with the acquisition of land, development of the property, and machine acquisition. The factory is well-planned on 45 bighas of land beside the Shitalakhya River, under the Rupganj Police Station, which is barely 25 kilometers from the country's capital.

The facility began production with a daily capacity of 296 metric tons of paper. Paper Machine - 1 and Paper Machine - 2 combined capacity Our third paper machine was just installed. The firm is proud of its capacity to produce a high-quality paper that is both cost and quality efficient when compared to both domestic and international competition.

Creative Paper Mills Ltd. (CPML) goods are manufactured entirely of 100 percent virgin pulp and are produced in an environmentally sustainable way.

Products

- **Creative Classic**

It comes in a wide range of formats such as GSM: 65 – 70 – 80 – 100 and three different forms: A4, Legal, and A3.

- **Creative Exercise Book**

It comes in three different categories: Math, Bangla & English which are both suitable for children at school and students in the university. Creative Exercise Book is suitable for daily use and comes in many different pages anyone can pick from 84/104/124/164/204 pages.

- **Creative Sheet**

- **Creative Roll Paper**

Effluent Treatment Plant (ETP)

The wastewater treatment plant of Creative Paper Mills Ltd. has a capacity of 600 M³/hr. One equalization tank (volume 2000M³), one clarifier (volume 850M³), one slug tank (volume 200M³), and two aeration tanks are included in this kit (vol. 4400M³). Following biological treatment, the ETP can supply wastewater under the Department of Environment's allowed limit.

As a consequence, the Government of the People's Republic of Bangladesh has issued us an "Environmental Clearance Certificate."

Energy Saving Implementation

CPML has taught personnel from all levels of the company how to conserve power in every procedure. It could be while operating machinery and equipment, using a computer, or even turning on the lights. CPML believes that every effort toward energy conservation is a step toward a greener planet.

Report Methodology

During the preparation of this research, I acquired information and analytics from both primary and secondary sources.

Primary Research

The report devotes a significant percentage of its content to discussing the data acquired via primary research. Face-to-face interactions with the company's workforce provided the bulk of the primary components and insights presented. Official staff members were the source of the information. Throughout the internship, I kept a diary and took notes.

Secondary Research

While primary research accounts for the bulk of this study, secondary sources account for a considerable portion of the data given. For my paper, I utilized secondary sources of information from a variety of sites.

The following are the main sources:

- Company websites
- Newsletters
- Google search engine
- Elevator industry research papers.

Scope Of The Report

This report gives a clear and simple overview of the firm as well as the industries in which it works. It focuses mostly on employee perspectives and gives particular information regarding the company's success in both domestic and foreign markets. This research will inform readers about the elevator and escalator market, its mechanical processes, and Bangladesh's potential in this sector.

Limitations

For obtaining most of the company's information and insight, three months was a comparably short period. Despite this constraint, I have tried to do my best to maximize this opportunity.

Company Overview

Company Overview

CEL offers both goods and services in the field of mechanical, electrical & naval engineering enabling the shaping of a national framework, a Private Limited Engineering firm, comprising various divisions and exclusive distributorships.

CEL has five zonal offices throughout Bangladesh

1. Mohammadpur
2. Mohakhali
3. Motijheel
4. Gazipur
5. Chittagong

History

- Creative Engineers Ltd. (CEL) started with a humble initiative in 1981 when Mr. Tabibul Huq, an Electrical Engineer from BUET & an ex-EME officer of the Bangladesh Army, founded the company.
- Initially, Creative was involved in the supply of electrical equipment, such as Power Transmission Systems, Generators, Substations, etc.
- In 1981 the company got the franchise of Haushahn Lifts of Germany and in 1984 of O&K Escalators of Austria, to promote the sales and installation servicing of their products in Bangladesh.
- In 1998, Swiss company Schindler bought over Haushahn, and in 1999 appointed Creative Engineers as their exclusive Distributor for the Bangladesh market. Schindler is active in this market for over 50 years now.

- Creative Engineers is 40 years old now and has a manpower of 800, including 85 Engineers

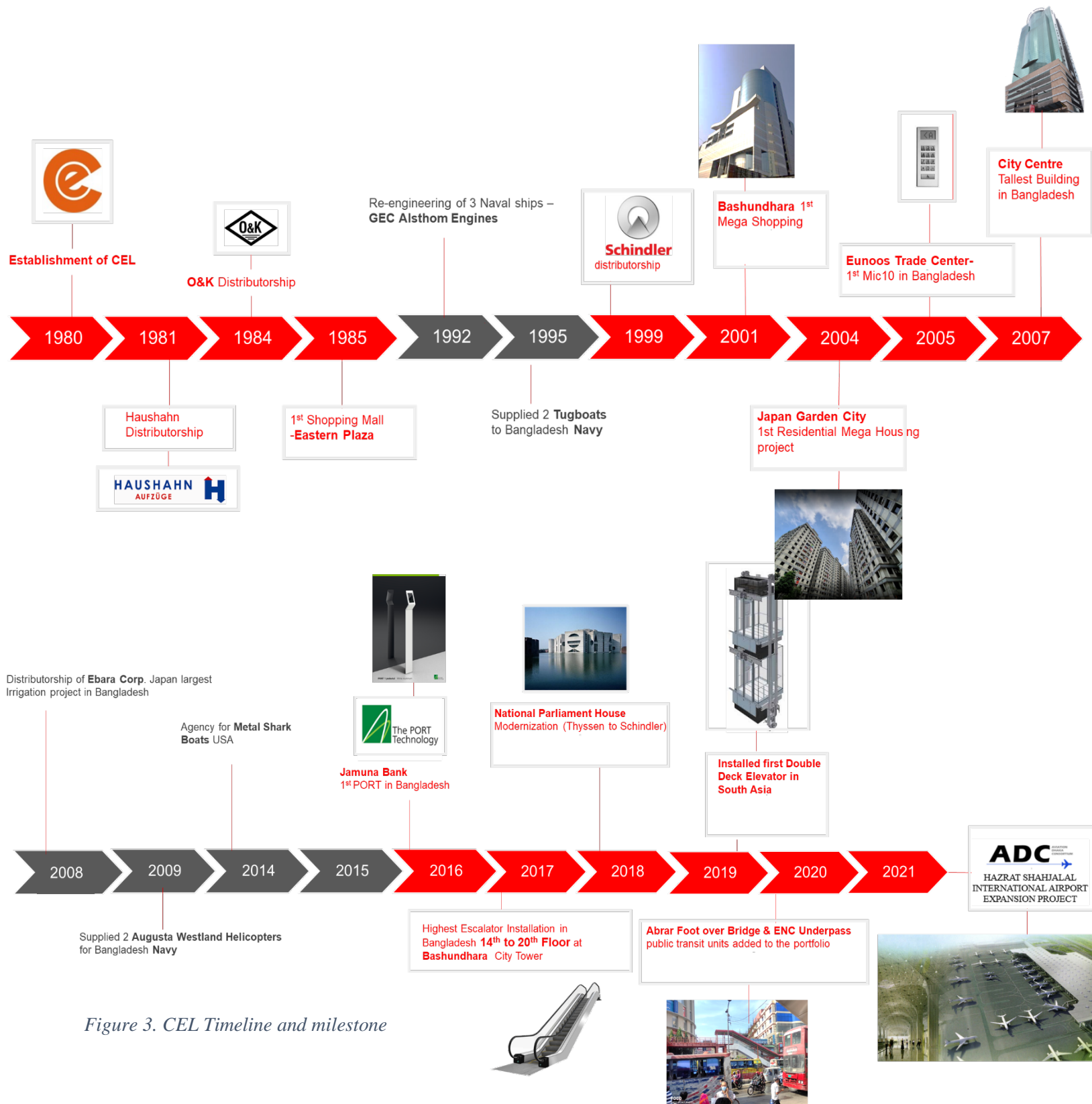


Figure 3. CEL Timeline and milestone

& 350 Technicians.

- Creative has so far sold over 1800+ units of Lifts, Escalators & Moving Walks in the Bangladesh market.
- Creative Engineers also has separate Trading and Marine divisions, actively pursuing various government projects & procurements. Annual turnover Taka 3.50 billion. Creative has investments in the Paper industry, Bank, Insurance, and Leasing companies.

Key Achievement

- Leader in Escalators in Bangladesh
- Sold & maintains the Only Available 6 Moving Walks in the country
- Fastest Elevators in the Country 4m/s
- The tallest building in Bangladesh

SWOT Analysis

Inspired by the vision of being the best service provider in the industry for its customers, CEL is committed to delivering on safety, quality, and customer experience. By focusing on these priorities, CEL aims to grow faster in the national elevator and escalator market.

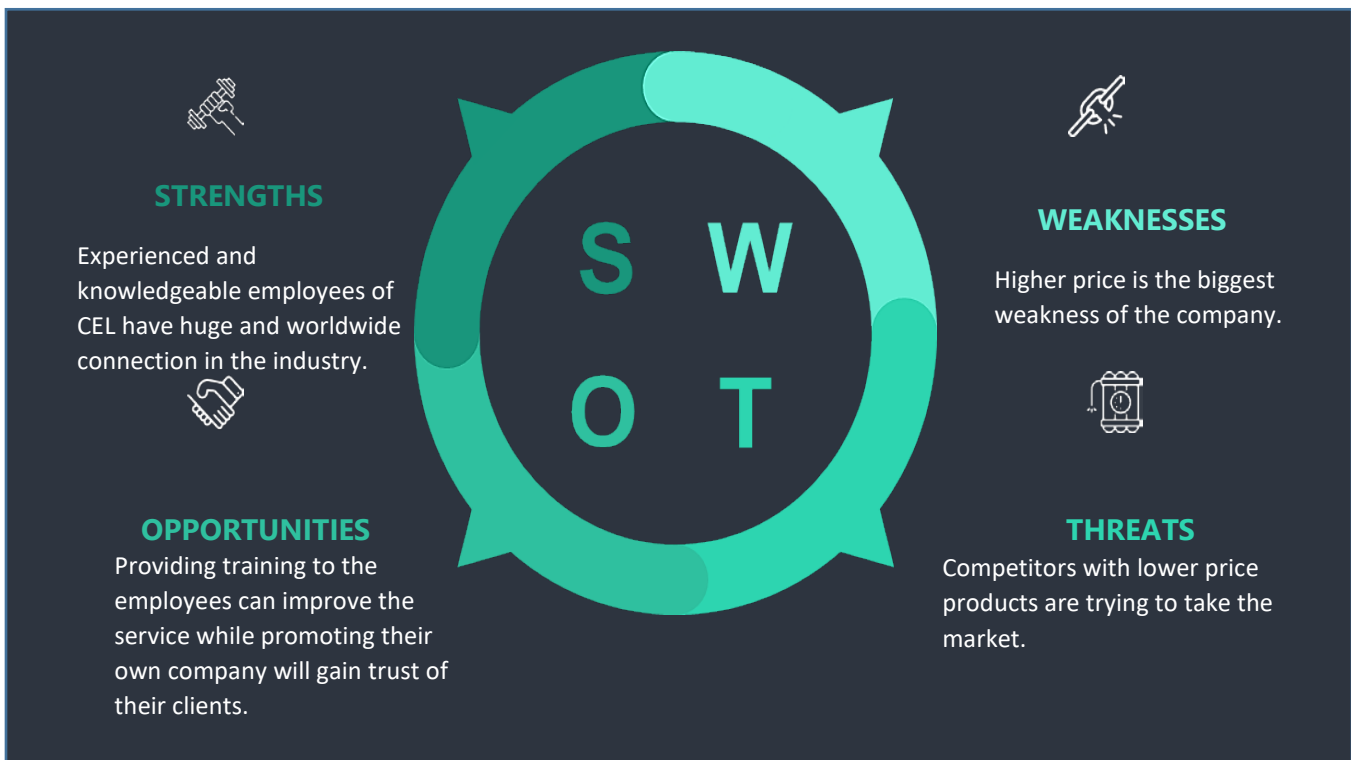


Figure 4.SWOT

Strength	Weakness
<ul style="list-style-type: none"> ● Market leader: CEL has been operating in Bangladesh since 1981. They have the experience, knowledge, and most importantly networks to hold a strong place in the market ● Relationship selling and connections: The company knows its customers one by one and they connect all over the country. ● Versatile Work Profile: Cel has delivered Schindler products in many known and historical places in this country. This is the only organization that has experience in working with large projects with 100 units. ● Brand power: Schindler is a well-known and reputed brand for swiss accuracy, precision, and sophistication. ● Range of Modular Products: Since Schindler can provide products from different origins, they can offer products of multiple varieties. 	<ul style="list-style-type: none"> ● Customer Perspective Value: Schindler values safety and quality over everything else. But the people in our country look for cost-efficient products even if they do not provide the least concern for their own life. ● Product Type: People consider a branded elevator a luxury product rather than a necessity. ● Limited Design standard: The designs they sell here are limited.
Opportunities	Threats
<ul style="list-style-type: none"> ● Training: Employee training is very effective since most of the employees in CEL are working here for a long time. Proper training can make them better as they have experience. ● Improving Services: Service providers can provide better services and thus make a better stand in the market. ● Branding and Marketing: Though Schindler products are being promoted significantly CEL as a brand needs more promotion. 	<ul style="list-style-type: none"> ● Price-oriented Competitors: Chinese competitors are the main competitors while fighting for price. They can offer way less than Schindler can offer. Though products from Schindler are far better. Other than Chinese competitors, distributors of Kone, Sigma, Otis, etc. brands also provide lower price and price-worthy products. Local manufacturers like Walton are also selling using consumer emotions of selling native products.

Table 1. SWOT Analysis

Porter's Five Factor Analysis

Porter's five-factor analysis is normally done to measure the company's future. To measure up the threats of different aspects like the new entrants, suppliers, buyers, substitute products as well as the existing rivals. This gives a brief idea of how a company will grow in the long run. This model is more effective for new companies or startups. CEL is still trying to expand its business so this model will work here as well.

The threat of new entrants	Bargaining power of suppliers	Bargaining power of buyers	The threat of substitute products	Rivalry among existing competitors
The threats of new entries in the elevator industry are considered low.	The bargaining power of suppliers is high.	The buyer's bargaining power is very high. Salespeople have to work very hard to get customers.	There is no other alternative than a lift or escalator to move upward. So, the threat is very low.	The competition in the lift industry is very high.
It takes a huge amount of investment to start a lift company. Not to mention the licensing process, insurance, distribution channel, etc.	Most of the supplies come from the country of origin like Switzerland, India, etc. and they ask for a high price even if it is just a small spare part.	The customers check the price variation. Even if CEL offer varieties of prices for the different origin of products, they often get compared with Chinese products.	The increase in high-rise buildings also creates the need for elevators.	Other than government projects and tenders, competitors are coming strong.
There are quite some low-cost lift industries from China and Japan trying to shake up the original players like Schindler and her competitors like Thyssen, and Kone.	For the local supplies, bargaining goes smoothly almost all the time.	To decrease the customer's power, the company is providing smooth post-installation-free maintenance to increase brand loyalty.	Health-conscious people promote walking over using elevators. That threat could be considered low.	Competitors creating brand value is also a problem while customer retention.

Table 2. Porter's Five Factor Analysis

PESTLE Analysis:

To Evaluate the external factors affecting the company, this analysis is necessary.

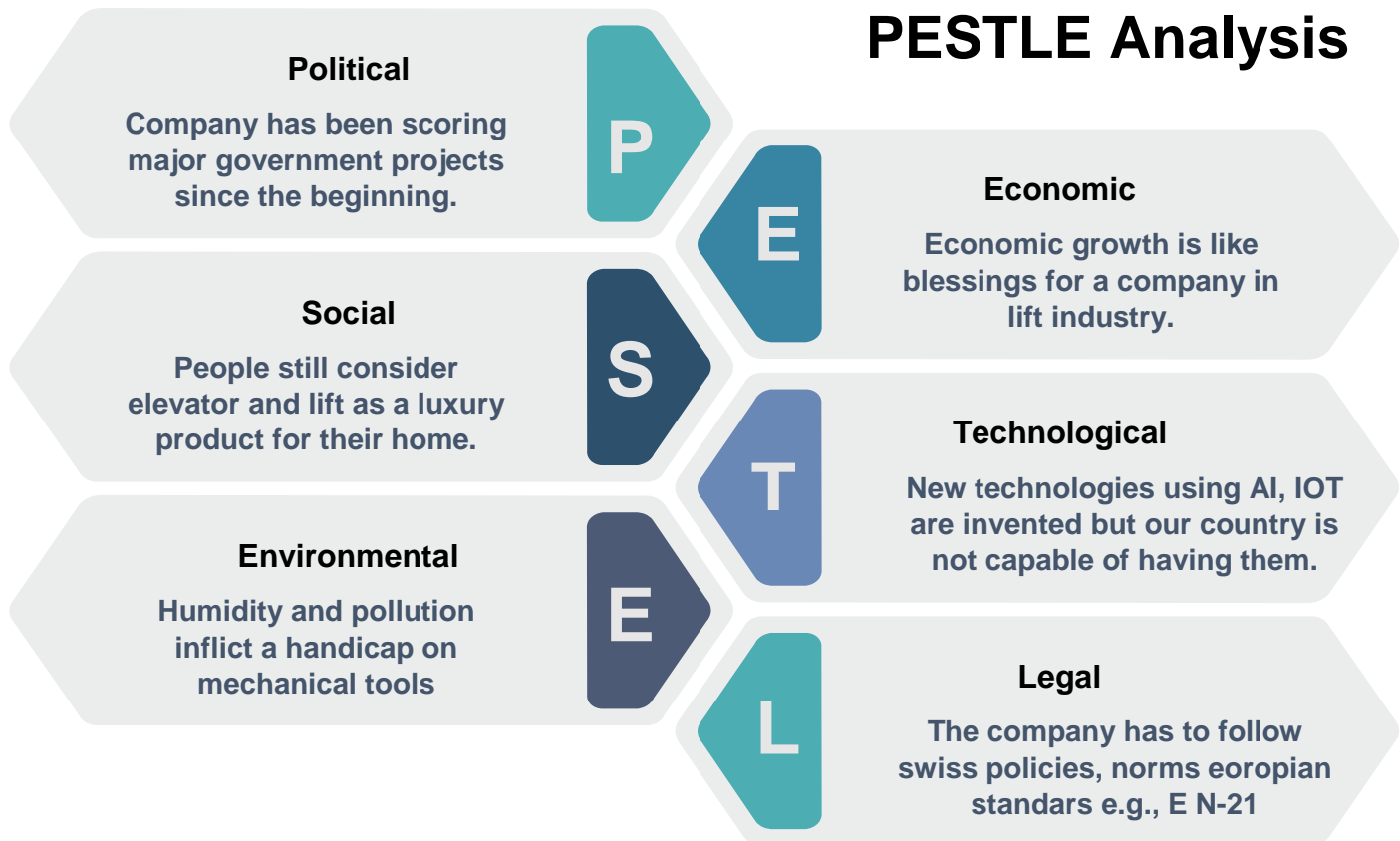


Figure 5. PESTLE

Political Factor:

Tax Policy & Tariff:

The company follows the regular tax policy imposed by the government. The tax is imposed directly on the price which is 12.5 percent which includes 5% Vat and 7.5% Tax. Since the elevators, lifts, and other types of machinery are exported from Switzerland, China, Korea, India, etc. countries, tariff has to be paid. This policy includes 3% tax for over 50 lakhs, 5% TAX for over 1 crore and 7.5% Tax for items over 2 crores.

Bureaucracy

The bureaucracy in Bangladesh has merely caused trouble for Creative Engineers. This company has been scoring major government projects since the beginning of its journey. Even in recent times, they got the project in Shah Jalal International Airport Terminal – 3 where they will be installing 102 lifts. It is indeed not easy to get government tender every time. That is why the company has hired a tender specialist. The tender specialist team consists of highly skilled and experienced employees. Some of them have been working here in this team for over 20 years.

Economic Factor:

Economic Growth Rates

The improvement in the economy in our country is the reason for many high-rise buildings, heavy industries, automated mills, offices, and educational institutions. All these growths are like blessings for a company in the lift industry. CEL is also growing day by day as the economy is growing. Just as GDP is increasing, the per head capital and head expense is increasing. People are consuming more. Lifestyle is also improving. As I have mentioned earlier, the Schindler elevator and lifts are expensive. For that reason, many residential buildings, and apartment could not afford these lifts. People now looking for ease of access in whatever they do. This range will hopefully increase with the growth of the economy. Compared to 10 years back, nowadays many residential properties own Schindler lifts and elevators.

Exchange Rates

Since the products and materials come directly from the countries manufactured so the price, we get are either in dollars or in pounds. So, the exchange rate affects the profit and price on a large scale.

Unemployment Rates

CEL has more than 700 employees. 60 to 100 people are working in their corporate office. This company is growing day by day so they need skilled employees who can keep in touch with the current world. Even though the unemployment rate is rising in our country, there are very few less-skilled workers. The company has a recruitment team who are struggling to find skilled staff.

Social Factor:

Cultural Aspects & Perceptions

Even though the economic growth is quite noticeable, people still consider elevator and lift as a luxury product for their home. The government has made rules that a building for any commercial activity including renting an apartment if it is more than 6 stories, they need to install lifts in the houses. The government's organization Capital development board does not approve any houses that are more than 6 stories without proper space for a lift. Thus, the perspective in this region is changing bit by bit.

Health Consciousness and Age Distribution

Health consciousness is another factor that plays the upper hand in considering lift consumption. People with weak hearts are suggested not to climb more than the 2nd floor. The same rules are applied to pregnant ladies and elderly people. For these people, lifts and elevators are a necessity.

Technological Factor:

R&D Activity

Schindler products are always improving. The new technology we can see in their advertisements. They have recently introduced 4d Docker. But the problem is, no matter how they improve they will only send the product in Bangladesh that is capable of maintaining here. New technologies are invented but our country is not capable of having them. Currently, Schindler has introduced AI for their lifts. An app where the app will tell you the location of the lift exactly. To call the lift you can do that with that app whenever you want. The lift will let you know how many people are inside as well.

Automation

The office environment is not fully automated. A lot of work is done manually. It is a struggle indeed. But the good thing is that they plan on upgrading it into automation. Budget is a fact for it. That is why the process is delayed. They will buy a new enterprise resource planning tool that is SAP. Also, they plan on buying a new Customer relationship management tool as well.

The Rate of change in technology

Though the whole world is using new technology Bangladesh is lagging. But it will change that is what we are hopeful for. AI is yet to be introduced here. So many innovations are yet to be introduced in Bangladesh.

Environmental Factor:

Weather Conditions & Temperature

A little less than moderate temperature is good for a machine to work properly. If the temperature is too high it is not good for the motor. The motor releases heat while working. A cooler is needed to keep the motor cool. In developed countries, Air Conditioner or Condenser is used for this task. Since such a machine increases both installation and maintenance costs, here people only use a cooler. Though, in some large projects, Air Cooler is used. Humidity is not good for any machine. In our country, except for winter, all the other seasons are quite humid. It is such a disadvantage for a mechanical tool.

Climate Change

Pollution

Pollution affects machines a lot. Dhaka is known for being the topmost inhabitable city in the world. The air is too much polluted and toxic to breathe in. The amount of dust in the air is too much. Such dust is harmful to machines. A lot of complaints we receive only to find out how much dust has caused the damage.

Legal Factor

Industry Regulation

CEL follows all the industry regulations given by the government of Bangladesh. They have their licenses and permits to operate and provide services all over the country. The product and material patent belong to the Schindler group. They follow the European standard for elevators which is the EN-81 series. The company has to follow swiss culture, norm and the quality is measured by swiss standards as well

TAX

To support the expansion of local manufacturing capacity, the National Board of Revenue (NBR) has exempted elevator assemblers from paying value-added tax (VAT) for three additional years, until June 30, 2025.

The Internal Resources Division (IRD) noted in a notice on March 21 that firms would also benefit from the VAT exemption when importing components and machines.

The NBR initially offered the bonus on May 14, 2020, to help boost domestic elevator manufacturing capacity, which is in high demand for multistory building development.

Some local companies, such as Walton and Pran-RFL Group, are now assembling lifts in Bangladesh for the rising market.

Major features of Schindler Elevators

Safety

- Automatic Rescue Device
If a power failure occurs between floors, a standby battery powers a small auxiliary drive motor, allowing the car to travel to the next floor.
- After two hours fire-rated doors
Additional protection & Safety in case of fire.
- Full height Infra-red Light Curtain
The purpose of a light curtain is to detect people or objects obstructing the doorway. LVH 128 is a static type light curtain, which produces a grid of 128 crisscross beams.
- Frequency Controlled Door Drive
For fast & reliable operation.
- PDF (Protection Against Power Fluctuation)
It protects the electrical components of the elevator against Power Fluctuations. It ensures the service life of the elevator.

Innovation

- STM
 - Traditional cables are less flexible than Schindler's proprietary suspension traction medium (STM). They may fit on a smaller sheave and take up less room because of the reduced bend radius.
 - Because of the space-saving design, your hoistway or machine room will have a smaller machine. The STM also provides a more comfortable and stable ride. They're a significant improvement over traditional cable.
- Machine Room Less Technology
 - Building Design Architects
 - Because there is no MR, there are superior building aesthetics and greater design options.
 - Space Savings: Better hoist space usage results in a more rentable area inside the building overall.
 - Construction Cost Savings: The MRL solution reduces the cost of construction effort and materials, resulting in a lower overall building cost.
- Schindler Ahead
 - Schindler Ahead is the Schindler Group's digital brand. With networked elevators, escalators, and moving walkways, the possibilities are nearly endless, from the SmartMirror and DoorShow to our digital service solutions like RemoteMonitoring and ActionBoard.
 - Turns elevators & escalators into communication platforms.

Product Line

Key figures & benefits	Schindler 1000	Schindler 3000	Schindler 5000	Schindler 7000
Segments	Apt/Condo, Villa, Residential, Office, Social Housing	All except Airport, PT/others	All except social housing	High-rise solution
Capacity	340 – 544 kg	340 - 1360 kg	680 - 2500 kg	800 kg – 5'000 kg
Travel height	45 m / 16	80 m / 30	150 m / 50	Up to 500 m
Speed	0.63 – 1.0 m/s	0.63 m/s - 2.5m/s	1.0-3.0m/s	2.5 – 10.0 m/s
Key benefits	<ul style="list-style-type: none"> • Compact Design • Simple Choices • Value for Money • Functional Options 	<ul style="list-style-type: none"> • Multiple Design Options • Personal Touch • Outstanding Flexibility • Reliable & Comfortable 	<ul style="list-style-type: none"> • Traffic Performance • Full Design Freedom • Ride Quality & Energy • Efficiency • Smart Technologies 	<ul style="list-style-type: none"> • Smart operation • Intelligent Transit Management • Excellent ride quality • Upselling packages • Green mobility • Preventive maintenance

Table 3. Product Line

Industry Analysis

Industry Analysis

Industry Size and Growth Trends

The major companies in Commercial Elevators Markets:

1. Schindler Group
2. Thyssenkrupp AG
3. Toshiba
4. Siemens
5. Fujitec
6. Hitachi Ltd
7. OTIS Elevator Company
8. Schneider Electric
9. Hyundai Elevator
10. Kone Corporation
11. Mitsubishi Electric
12. Motion

Elevator Market Breakdown by Type

By Capacity

- Loading 800kg
- Loading 1000kg
- Loading 1250kg
- Loading 1600kg
- Other

Usage Type

- Residential
- Commercial
- Industrial

- Institutional
- Regional and Country-level Analysis
- The Commercial Smart Elevator

Global Market Segmentation by Geography:

- Europe: Germany, UK, Italy, Spain, and France,
- North America: United States, Canada, and Mexico
- South America: Argentina, Nigeria, Colombia, and Chile
- The Asia Pacific: India, Korea, Japan, China, Saudi Arabia, Southeast Asia

There is tremendous growth seen in high-rise and mid-rise infrastructure in Bangladesh. In the past three years, the market capture of elevators and escalators has expanded twice the former. Currently, the market demand for elevators is almost 6000 to 7000 units. And the market growth rate is 20 percent per year. According to the data research from the business insiders, 40 percent annual growth is predicted. This much increase is predicted to cover up pandemic-induced losses. The current estimated industry size is 14 billion. In 2019, the value was almost half which is around 7 billion. This sector employs 20 thousand people directly and indirectly which is .0003% of the total employed population of this country even though this industry is mostly import oriented. Yet local manufacturers are producing promising quality products that are quite attractive for the recent entrepreneurs. Almost 90 percent of demand for the product is fulfilled by imported products from China, Korea, Spain, Thailand, India, Germany, Turkey, Switzerland, and other European Countries. Local manufacturers are fulfilling the rest of the demand.

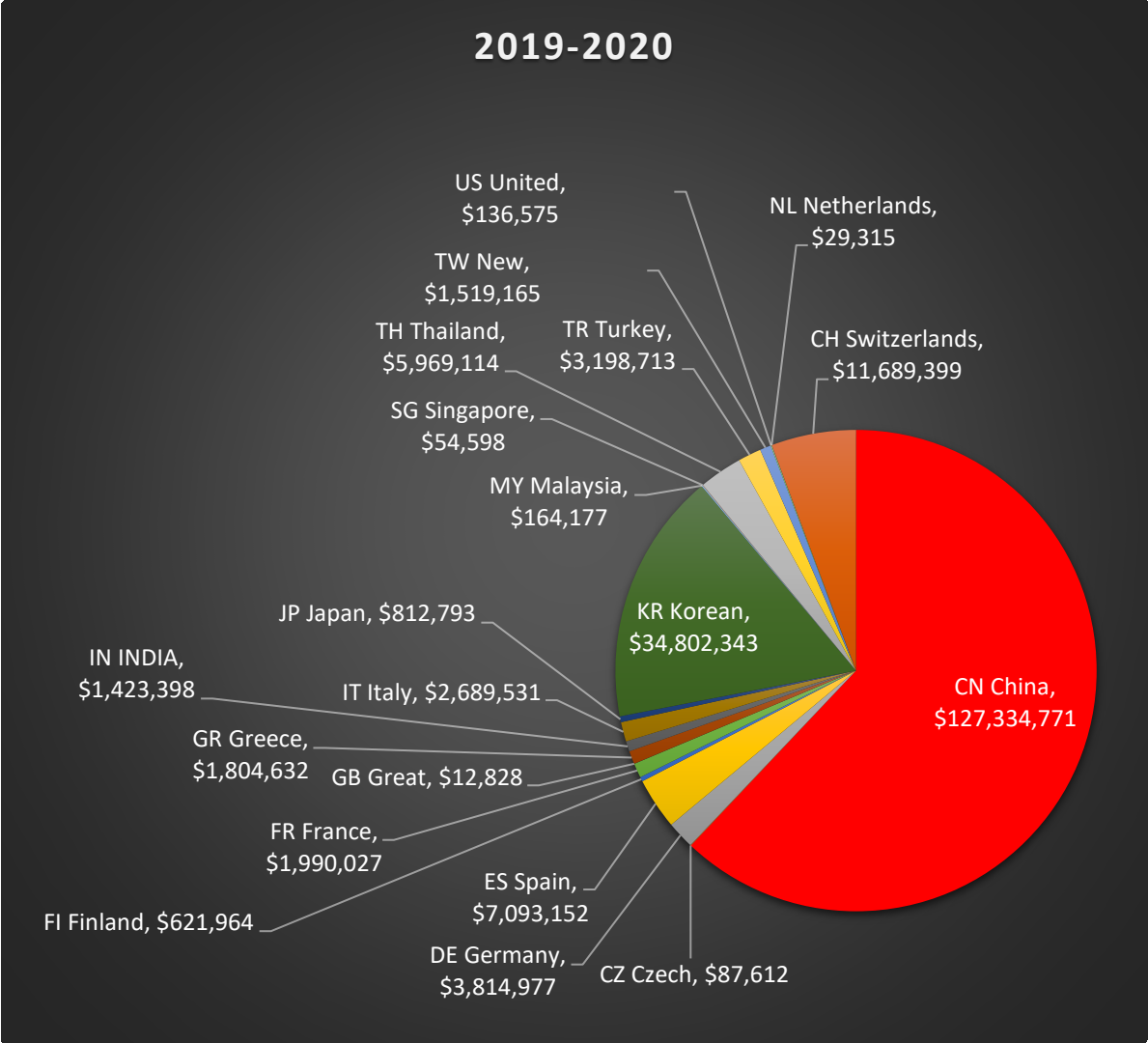


Figure 6. 2019-2020 Market Demand

The need for large-scale lifts or elevators has increased dramatically in recent years, in tandem with the expansion in high-height structures and increased industrial usage in major cities.

According to official statistics, in the fiscal year (FY) 2013-14, 5,143 units of lifts, both small and big, totaling 13.1 million tons were imported, whereas 4,355 units weighing 26.6 million tons were purchased in FY 2018.

A small lift weighs around 5 to 6 tons, whereas a big lift weighs approximately 20 to 25 tons. Although the number of units sent into the nation decreased from 2014 to 2018, the total weight more than doubled, indicating that more heavy lifts were brought into the country.

In FY 2019, however, imports were reduced to 3,310 units weighing 18.3 million tons.

Previously, small-sized elevators were purchased for multistory structures with up to seven stories. A high-rise building is higher than 23 meters or 75 feet, or the height of a seven-story structure. Dhaka has over 1500 high-rise buildings, with many more in the works.

However, the country's skyline remains sparse, with just 16 planned skyscrapers, including the 96-story Legacy Tower, in the works, according to the Chicago-based Council on Tall Buildings and Urban Habitat.

According to official statistics, the cumulative net quantities of lifts received during the last decade have risen year after year. Customs authorities are unable to distinguish between big and small lifts since they are all imported under the Harmonised System (HS) number 8428.10.00, they claim. In addition, customs assess an import charge based on the lift's weight. According to customs statistics, lift imports peaked at nearly 86,000 units in the financial year 2013, with a total net weight of 10.3 million tons. When contacted, many lift importers informed the FE that demand for large-scale lifts/elevators had increased in recent years. They said that lifts are now employed for a variety of applications, not simply commercial or household ones.

The data from customs confirms this. The number of lifts imported in FY2010 was 19,816 and increased to 86,122 in FY 2013. The industrial elevators transport items from one location to another.

To fulfill the expanding demand, numerous kinds of lifts are currently being imported, including building lifts, capsule lifts, hydraulic elevators, pneumatic elevators, passenger lifts, freight elevators, and residential elevators. He said that enormous elevators are increasingly being utilized to transport items in the industrial sector and that hospitals also demand large lifts.

Evaluation of Elevators

Around 160 years ago, Elevators were one of the key technologies of the industrial revolution. Elevators may be traced back to ancient Egypt's pyramids (Gavois 1983), the time when the development of massive constructions necessitated the ability to move materials to heights above what people might raise without mechanical assistance. In the year 80, for building, the Egyptians, Romans, Babylonians, and others built more complex rope and pulley systems, capstans, and other hoists—and there is an indication of an elevator hoistway in the Roman Colosseum.



Figure 7. Evaluation of Elevators

The IoT, advancements in communication, widespread smartphones, and other new digital technologies provide a huge opportunity for interpersonal communication and improvements in a wide range of aspects of urban life, which include people's vertical displacement in increasingly taller structures for living and working. Megatall structures increase the difficulty of elevator design in terms of both technology and overall user experience.

Maturity of the Industry

Elevator market size exceeded almost a hundred billion dollars in 2021, with an annual growth rate of above 3% expected from 2022 to 2028. Increased commercial building activity will have a favorable impact on the industry's growth.

With the growth in the economy, it is expected that within the next decade the nominal value would rise to 6 trillion.

The Asia Pacific region's market growth is the key cause of this expansion. Rapid urbanization has been seen across the Pacific, and this tendency is likely to continue in the next few years, resulting in significant demographic and economic changes. Elevators will become ever more necessary as

the world becomes more urbanized. By 2028, the elevator industry of the Asia region is expected to produce almost 85 billion dollars in sales. The region's building industry is a major driver of regional market demand. The construction sector is growing as a result of rising expenditures and supporting government initiatives. From April 2000 to December 2017, the Indian building and construction industry received 24.67 billion dollars in foreign direct

Coverage	Details
Base Year	2021
Current Market Size	\$ 99.26 million
Forecasting Period	2022 to 2028
Expected Growth Rate in 2028	3%
2028 Value Projection	\$ 120.08 Million
Growth Drivers	<ul style="list-style-type: none"> • Building and construction sector developments in the Asia Pacific • Elevator service and maintenance market expansion in EU and North America • Booming construction operations in the Middle East
Disadvantages	<ul style="list-style-type: none"> • High installation and maintenance costs

Figure 8. Forecast

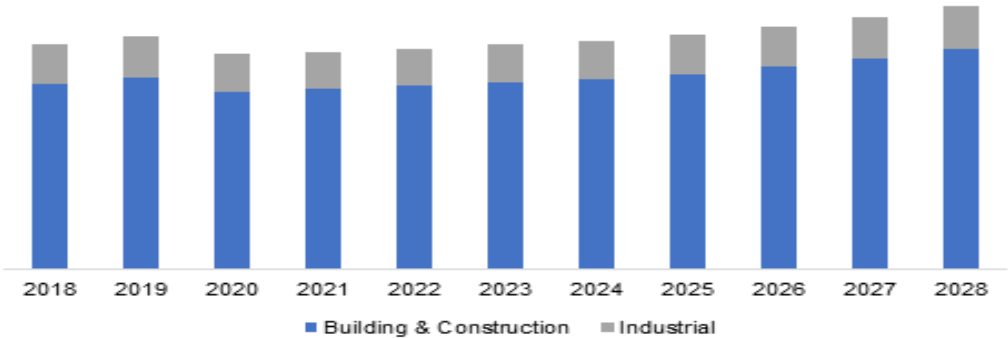


Figure 9. Market size by user end

Investment (FDI) in the construction industry development sector. This upward tendency can be ascribed to several government measures aimed at boosting the Indian building industry. In industrialized countries, such as Europe and North America, demand from the building sector has achieved a level of constancy that has not been seen in emerging nations. As a result, maintenance, repair, and after-sales service, as well as a significant need for new installations, will drive the regional elevator industry. In the European Union, the construction sector contributes 9% of GDP and employs 18 million population.


Among the recent technologies, machine room-less traction is the most popular one. By 2028, the MRL traction category is expected to increase at a rate of roughly 3.5 percent. Because MRL traction elevators' traction machines and controls are designed to be small and located in the hoist path, they do not require a machine room. Within 150 feet of the machine, control boxes are located in a control room close to the elevator shaft. When repairs and maintenance are needed, the machine is accessible from the roof of the elevator cab. In buildings with limited space, the elevator is the main mode of transportation due to the lack of a specialized machine room.

Competitor Analysis on Destination control system (DCS)

A high degree of competition can be seen in the elevator industry


Fujitec Co., Ltd., Mitsubishi Electric Corporation, KONE Corporation, Schindler, ThyssenKrupp Elevator Technology, Hitachi Ltd., Toshiba Elevator and Building Systems Corporation, and Hyundai Elevator Co., Ltd. are a few key players in the elevator market. These participants adopt various strategies including product differentiation & development, strategic partnerships & collaborations, and expansion of sales & distribution networks to gain a competitive advantage.

Currently, the elevator industry has reached the level that they have created a system to automate the whole building through apps thus the elevator traffic could be reduced drastically. All of these can be done through a mobile phone app that also has different role access. For Schindler, it is called Port Technology. Port technology is one of Schindler's specialties. This is where they have the upper hand. DCS can be applied in any amount of lift no matter how many units or how many stops in infrastructure has. But other brands have limitations here. They have a limited number of car groups and stops that their technology and software can support. Schindler Port 4D offers access credentials, directions, and arrival time estimation. It provides a comprehensive ecosystem of transportation and access terminals, as well as data-driven services that expand the scope of transit management.




PORT Technology

- 3rd Gen of DCS/Transit Intelligence
- No limitation with no of lifts/ stops
- Access Control/Communication std
- Mobile call possible
- Complete Building Access integration with myPORT.
- Turnstile Integration
- Touchless Calling with RFID/ Mobile




Polaris 900

- Max car group 16/ stops 126
- Position Indicator Possible
- Push Hybrid DCS
- Hall Lanterns not possible
- Mobile call possible
- Building Access integration not available




Compass Plus

- Various options based on features & sizes
- Offers Hall Lanterns
- Mobile call possible
- Price Competitive
- Building Access integration not available




FIBEE

- Max car group 8/ Floors 64
- Offers Hybrid DCS
- Mobile Calling Not Possible
- Offers Destination Group Indicator
- Building Access integration not available



FLOORNAVI

- Max car group 8/ Floors 40
- Offers Destination Indicator
- Mobile Calling Not Possible
- Not possible with Double Entrance
- Max DCS panels 88
- Building Access integration not available



Σ AI 2200 C

- Offers Flashing Hall Lanterns
- Hall Lanterns with Arrows
- Basic Access Control
- Very Less References
- Push Immediate Predication
- Building Access integration not available

Table 4. Competitor Analysis

Main Duties

Regular activities

- Data collecting and cleaning: I collected data from the sales coordinators, storage in charge, accounts, recovery team as well as from the internet and other outsourcing. After collecting the data, data cleaning is the next process. Preparing the data for analysis was my task. At this point, I could find a data mismatch. To fix this I had to crosscheck data from other sources or personnel.
- Findings: After processing the data, findings are highlighted.
- Preparing meeting minutes
- New Installation and Existing Installation projects complaints tracking weekly and monthly. Recording complaints from WhatsApp groups and uploading them online. Collecting progress updates from the EI and NI department heads.

Involved Projects

- Sales reporting
- ERP User Research
- Wireframing for the websites.
- Preparing database format for Sales.
- Developers List collection
- Lift & Esc Import report of Bangladesh form 2019 - 2020
- Physical Inventory report database summary writing
- Spare parts consumption database cleaning and preparing for analysis.
- Cost Analysis: This task was different from regular tasks. There are different types of projects that the company works with. The main types are Private projects and Government projects. Government projects that are under PWD were my first step in this task. At first, I collected data from the ERP of the PWD projects. While I was cleaning and analyzing these data I found a mismatch with the recovery team records. Then, I worked with the recovery team and their ERP users who recorded this data. It was really hard to match the balance since some of the old data were not to be found. I worked alongside the recovery team to match the party ledger.
- Qualitative analysis of customer complaints

Working Tools

- **Excel:** To clean up data and mostly excel is used for data storing
- **Power BI:** For visualization
- **MS PowerPoint:** To make presentation and brochure
- **Google Spreadsheets:** For working in a team and for the team lead to supervise
- **Google forms:** To collect data
- **ERP:** This is purchased software from Devine IT. It is used mainly for the accounts department.
- **Miro:** To make wireframes
- **Adobe Premiere Pro:** To edit promotional videos

Difficulties and Challenges

- **Time:** In terms of difficulties, the first challenge I faced was the time frame. I had to work full time from 9 AM to 6 PM. This was my first time working for that long offline. It took me a while to adjust and cope with such a timeframe. Though I am not sure to call it adjustment as I still feel too drained after work. Here timeline is maintained. Though many people stay here after workhour. Sometimes I also had to stay for a while after work. But I also got to go home after a half-day at the beginning of my internship thanks to my supervisor.
- **Language:** People are working here who came from India to oversee. They are from Schindler India Private Limited (SIPL). SO, sometimes they talk in Hindi but most of the time they speak in English. I am fluent in both of these two languages so I had never faced the language barrier here.
- **Interaction:** People welcomed me open-heartedly here. Whenever I had issues with interaction, other guys helped me very much.

Learning

- Here my supervisor trained me in excel. Before I never had such firsthand experience in working with data. But now I have such experience. Though the data amount is not huge it is indeed complicated. We had to work with it.

- I also work with departments in charge of a lift installation. I got to learn about how those types of machinery work. A lot of mechanical engineering knowledge I got to gather. While I was working on the physical Inventory of the storage, it was the first time I got to know how it is done for real.
- Then I also worked with the accounts department for their cost analysis. It was great as I got to learn about how finance and accounts teams work in a company. My overall journey was wholesome

Work interactions

This company serves its clients directly. Provides products and services. But I did have to communicate with the clients. Rather I had communicated with the employees directly. I collected data mostly from the back office. I had mailed them for it. The formal communication process is mailing here even if the person is right next to you. There are also PBX telephones at each table though which we could ask about all the other minor quarries we had. I had sometimes collected data from the customer service in charge and the department heads. Formal communication was always done through the mail.

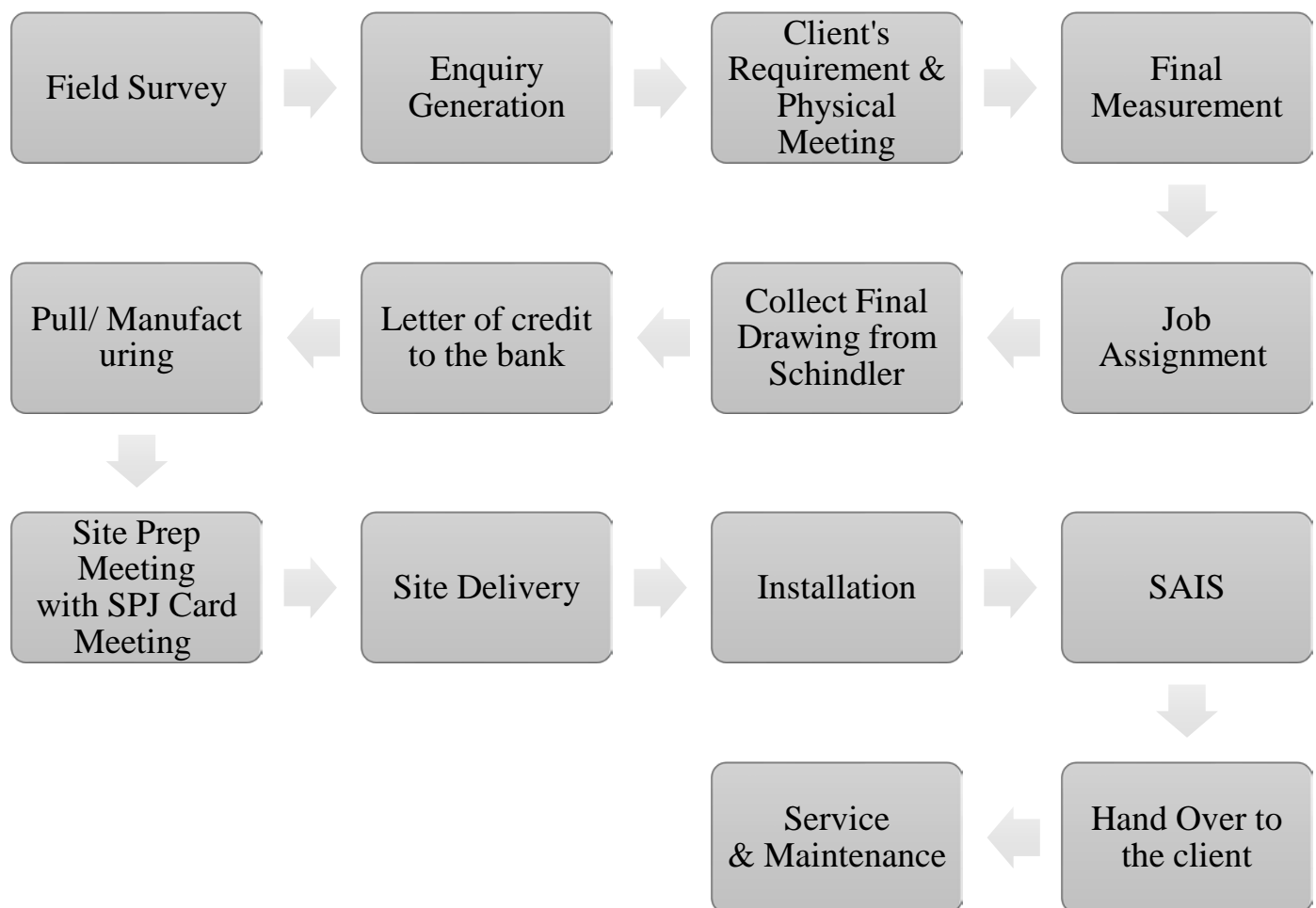
Analysis of Duties

Analysis of Duties

Company level analysis

The company measures KPI and does performance evaluations every month and they do that for the sales team every week. This is very much effective. This process started not long ago. And after a while the change was drastic. The work efficiency has almost doubled. Keeping everything checked by the management was something that make people feel recognized. The company has improved its sales process and communication system as well.

Sales and Business Process



The product Schindler provides here in Bangladesh are not customized. That has a huge effect on the market. There are many buildings where customized elevators are needed. In Bangladesh, many areas are not planned. Among those unplanned urbanized areas, people are building houses that are beyond the plan. For these kinds of buildings, customized products have more demand. Few companies are manufacturing elevators. In the far future, it'll be difficult to cope with them if Schindler does not come up with a customized product line. Both CEL and Schindler should be thinking about merging the companies. Consolidation of both the companies shall be able to reduce the product price, as well as increase the work culture and environment. It will also bring a huge amount of foreign direct investment to the country.

Market level analysis

According to the Bangladesh Lift and Escalator Association, 25 firms produce elevator instruments and accessories such as cabins, mechanical items, motor bases, sheets, cabins, cop, and lop.

With the expansion of the lift business, sub-sectors like service and repair have emerged, creating major job opportunities.

Most lift suppliers give clients after-sales support for a certain amount of time, after which consumers must depend on local technicians to repair and maintain their lifts. Some organizations hire full-time employees to maintain their elevators.

People in the repair and maintenance industry claimed they make a good living by offering services to their customers.

Elevator firms provide free service for one year from the date of purchase, but after that, customers must pay a price for any further services.

Schindler is the number one brand in the escalator market and one of the top two brands in the elevator market. I have worked closely with the sales team, the analyst team that keeps all the data, and the COO himself. It was already visible how this industry and its demand

are growing. The total sale is increasing than in previous years. CEL was also able to get more than half of the government projects in the whole country. This company is well established. Now they are working hard to expand as much as possible. If they keep

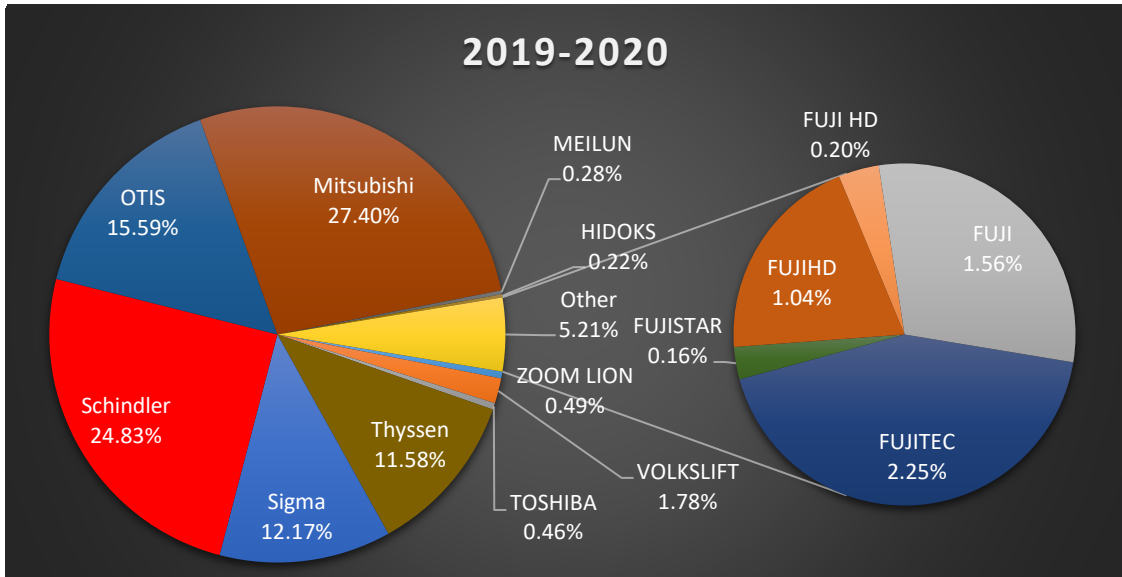


Figure 10. 2019-2020 Competitors' market capture

Professional Level Analysis

I believe this internship I had here was very much helpful to start my career. I got to learn about the corporate world better than anywhere else. My university major was technology management and my minor was information systems though my university provided both core business knowledge. My emphasis was always on technology management. My university courses like Supply Chain Management, Marketing especially minor courses e.g., MIS, Decision support system, etc. all were too relatable to believe. Reflecting on my fourth-semester learnings in CSE 4461-Computer Science and Technology II, I've seen that SQL is utilized to guarantee accurate information retrieval, analysis, and management. Currently, I am getting job offers from better workplaces related to this sector.

Employees maintain a framework of organizational behavior for the efficient continuation of CEL's daily activities, as I have seen here. At the individual level, each of the firm's executive members has a distinct value and personality. As part of organizational behavior, connection in the corporate world is one of the most prioritized and stressed inputs. This organization works at various levels to guarantee the complete implementation of correct organizational behavior for process management operations. While developing a healthy culture at this firm, each employee's motivation, perception, emotion, and moods were taken into account on an individual basis.

The main difficulties were coping with real-life challenges as my study was based on books that I had read. Or the project that might not be commercialized. So, I had to be a handful on the tools and software that this workplace was using. Another obstacle that I had encountered throughout my internship's first few days. The job change did not go as planned. But the collaborative atmosphere and culture of this firm made it simple for me to achieve excellent results day after day.

This internship will help me determine my future goals in a world that is always evolving. I have gained an understanding of needed skills, concepts of appropriate team management, and other behavioral impacting norms in the company, all of which will aid me in progressing along my professional path. In my daily activities, both using theoretical course information and experiencing real-world viewpoints have yielded great results. To achieve my future objectives, I will use my leadership, decision-making, process, and time management skills.

Recommendation & Conclusion

Recommendation

To the organization,

- **Foundation Training:** In the engineering industries, usually, employees are hired based on their skills, and experiences. Most of the time background is overlooked. It is indeed an effective way to bring out the most efficient outcome. But a company's managers who are the leaders should be better. A foundation training with the leaders of the company should be arranged to broaden the view of the future leaders of the company.
- **Employee Union:** there is no workers union or employee association in the elevator industry. Such a union shall make employees aware of their rights and it will increase the bargaining power of the employees over the owners.
- **Facilitation:** CEL management might purchase additional equipment, such as communication systems and automobiles for all, to ensure the smooth operation of the company's operations and to adapt to the changing competitive climate. The firm will be able to transition from manual to automated document processing and record-keeping as a result of this technical progress. The organization is already trying for it. They are about to have their data server to make work more efficient.
- **CRM up-gradation:** An upgraded CRM system can be very much helpful to automate the work and integrate all the different departments like HRM, Accounts, Sales, etc.
- **Go Green:** As an engineering firm related to construction, the company is using too much paper. The firm can start using computer devices for drawing, planning, and thus saving trees and the environment.
- **Business Expansion:** the company is already the market leader in the elevator industry, they can expand their business in a relevant sector like generators or motors.
- More opportunities for students as interns in the organization can be provided. The organization can increase the yearly intern intake. That can be a good business promotional investment.

For my university,

- Change the internship period, if necessary. The university should at the very least alter the time students spend on internships, particularly for accounting majors. Because by the period the interns go to the field, the organizations are wrapping up and concluding the

fiscal year, the timeframe should be shifted to January - April or June - October.

- The intern proposes that the institution should reduce the credit amount for this program. Currently, 3 months internship has a total of 9 credits which could be reduced to 3 or 4 and the rest of the credit might be added to the minor elective pool so that our expertise in our minor subject can be better.
- It is suggested that during the internship period no classes should be held. Interns remain busy the whole week at work. So, weekend classes only stress them out more. Thus, it also hampers the lessons that are being taught. The timeframe of the internship period could be after all the courses are completed.
- Ensure that students are placed in internships. The university should assist students in securing internship opportunities following their particular programs by providing suggestions to students to shorten their training times and eliminate the pain experienced by students looking for internship placements.
- The university should continue with the internship program since it helps students prepare for their future employment and allows them to put their theoretical knowledge learned in class into reality. It also aids in the development of students' knowledge of work ethics, job expectations, duties, and possibilities.

My internship was a success as I have learned more than the things I have done. I would like to recommend my fellow batchmate and juniors to explore the electromechanical engineering industries to start their careers. The elevator industry would also remain on my recommendation list. Most importantly there is an unavailability of female employees. I was the first intern in the company even though I never had to face biases regarding my gender. Other female employees were equally respected and recognized. So, I would want to recommend this organization to female job seekers.

Conclusions

Internship at CEL is one of the most knowledgeable periods of my professional life. I have indeed learned a lot. All the employees especially the leaders helped me throughout my whole internship. In recent days Creative Engineers Ltd. has been a major focus for Bangladeshi construction and builder companies. Through innovation and technological leadership, Schindler develops high-quality mobility solutions and creates smart and sustainable spaces for urban living. Schindler established the first contemporary worldwide standard for elevator planning, which the elevator industry has since followed.

Finally, this internship has been a very beneficial experience for me. I can confidently state that my comprehension of the workplace has substantially improved. However, I believe there are certain parts of the job on which I might have done better and on which I need to improve. I need to gain confidence in my ability to apply accounting concepts. I learned that I could have finished the projects sooner with better efforts. Also, the technical aspects of the task were a little shoddy, and I was requested to fix them many times.

Though the internship is all about learning the knowledge gap between the real world and the bookish world, I have always wanted a full-time job right after my graduation. I have always wished to avoid the unemployment phase after graduation. Currently, the company has offered me a full-time job thanks to this internship program.

The significance of time management and being self-motivated are the two key lessons I acquired during my time at this organization. That is why, I would recommend everyone to take advantage of internships, even if they are not in the field of their choice. Both professionally and emotionally, there is indeed a lot to be learned from it.

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