

ISMAIL INDUSTRIES LIMITED

FUNDAMENTALS OF SUPPLY CHAIN
MANAGEMENT

SUBMITTED TO: SIR ADNAN AHMED

PRESENTED BY:
KAPIL GURNANI (26032)
ARAFAT HUSSAIN (26626)
ABDUL RAHIM SHAIKH (26570)
ALI ABDUL RASHEED (24912)
USMAM SHAMIM (24541)

Table of Contents

45	Introduction of the Person2
**	Ismail Industries Limited2
**	Supply Chain Organogram
**	Supply Chain Strategy4
4	P2P at Ismail Industries
**	Material Requirements Planning
**	Aggregate Production Planning
**	Outsourcing at Ismail Industries Limited
**	Third-Party Logistics
4.5	Sustainability Measures
**	Supplier Management9
5	Selection of a New Supplier
1	Evaluation of Existing Suppliers10
9	Supplier Partnership10
**	AI in the Supply Chain10
**	Warehouse and Logistics10
**	OTIF
4.5	Incoterms
**	Safety Stock and Lead Time
**	Bill of Materials12
**	Performance Standards and KPIs12
4.5	Demand Forecasting and its technique13
4	Innovation in the Supply Chain14
**	Frequent Obstacles and Recommendations15
.4	Annandiy

Introduction of the Person

Mr. Irfan Shahzad Bhatti has had a long and varied career in the food processing and supply chain sectors. He has experience in a variety of fields, including supply chain management, quality control, production, and research and development. He started as a management trainee at Ismail Industries and has since progressed to numerous roles at Unilever Pakistan. His positions as plant manager, manufacturing excellence manager, category planning manager, and demand planning manager at Unilever Pakistan demonstrate his adaptability and proficiency in handling supply chain elements related to both manufacturing



and non-manufacturing activities. His secondment in Singapore for 3 years and his involvement in the global audit team serves to further emphasize his global experience.

The professional path of Mr. Irfan Shahzad Bhatti shows that he adjusted to various positions and difficulties in the food processing and supply chain sector. He resumed his leadership role in the manufacturing sector at Unilever Pakistan, leading the ice cream factory through the difficult COVID-19 period after his return as Planning Director. He moved to the tea division, which is currently Lipton Teas and Infusions, and held the position of Regional Supply Chain Director for South Asia, which covered Bangladesh, Sri Lanka, and Pakistan.

He received a call back from Ismail Industries as Chief Operating Officer for Technical Functions. It is evidence of his ongoing dedication to the company, where he started his professional career. With his knowledge of supply chains, he probably supervises and guides several technical parts of the business's operations in this capacity.

❖ Ismail Industries Limited

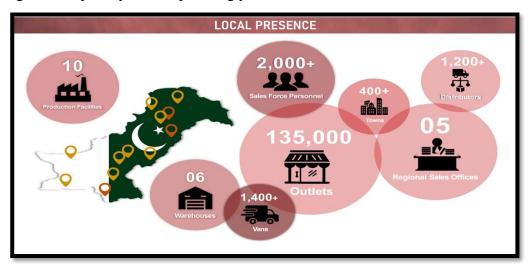
Ismail Industries was formed by Abdul Razak Ismail who passed away in 1988. He began his journey with a tiny candy company and was keen to expand the product line and market share over the years. Ismail Industries has left its blueprint in both local and foreign markets. The company has a wide range of products that are delivered through strong distribution networks like convenience stores, supermarkets, and retail outlets. In addition, it exports to a large number of countries, including those in the Middle East, Africa, Central Asia, and Europe.

The company uses cutting-edge technology with its manufacturing units in order to deliver high-quality products. Hygienic food safety standards are met to meet the international demand of consumers. Moreover, Ismail Industries Limited provides a large selection of goods to meet the demands of various clientele. One of Candyland's primary offerings is the assortment of candies, toffees, and chewing gum it has to offer. With so many different tastes, it is a brand that appeals to people of all ages.

Another well-known brand that specializes in cookies and biscuits is Bisconni. It makes sure there is something for every taste with its assortment, which includes luxury cookies and traditional tea biscuits. SnackCity embodies the spirit of Pakistan's rapidly expanding snack market with its enticing selection of potato chips, corn snacks, and extruded snacks in the savory snack category. Furthermore, Ismail Industries also runs Ismail Nutrition where it partners with the UN to increase malnutrition in Pakistan. Ghiza also offers high-quality flour to the Hotels. Ismail Industries through Astro Steels is one of the fastest packaging exporters.



Since its founding, Hudson Pharma Private Limited, a division of Ismail Industries Limited, has grown and has consistently brought cutting-edge technologies to the market. They offer every kind of medical equipment. Their goal is to leverage our core principles and increase customer satisfaction by consistently producing high-quality products. In addition, Ismail Industries wants to become Pakistan's biggest food manufacturing company by maintaining its current growth trajectory in the upcoming years.

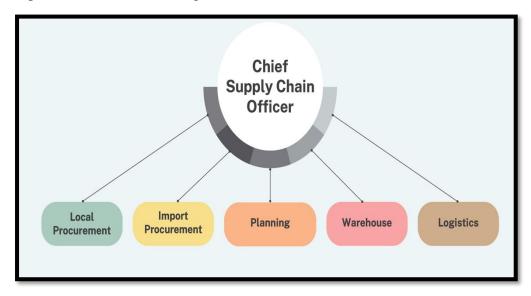


Supply Chain Organogram

The hierarchy and organizational structure of a company's supply chain management team are depicted in a supply chain organogram, often called a supply chain organizational chart. It usually describes the duties, responsibilities, and lines of reporting for each department or function in the supply chain. Ismail Industries has a chief supply chain officer. A planning manager, a warehouse manager, and a logistics manager are located beneath that. Under that, there is a procurement team. The procurement team is divided into two parts; one is a local procurement team, and another is an import procurement team.

The supply chain function's organogram makes it clearer who is in charge of what. The supply chain is one of the major functions at the Ismail Industries. It has a widespread impact on cost and revenues that can impact the financial statements. The organogram also includes many

suppliers and consumers who make up the company's market share. The hierarchy structure plays an important role in determining duties.



Supply Chain Strategy

The supply chain plays a role in demonstrating these strategies. The overall business strategy and the supply chain strategy should be in sync. The primary objective of the business plan is profitability and expansion. The supply chain prioritizes efficiency improvements and cost reduction. In Ismail Industries, the supply chain accounts for 70–80% of total cost. Raw materials, packaging, storage, and manufacturing overheads make up the total cost. The value chain becomes crucial to achieving organizational goals.

The three strategic aspects of the supply chain are price, quality, and service. A component of the supply chain is the cost of manufacturing and planning. Expenses include inventory planning, which is necessary to lower working capital, and manufacturing which overall lowers factory costs. Cost-cutting measures include supplier partnerships and negotiations. The provision of the finished product to customers at the appropriate time, price, and location is the service. The goods of the Ismail industries are transported, stored, distributed, and then reach the end users. Along with research and development, quality provides a competitive edge. Searching for substitute recipes and top-notch machinery to manufacture a world-class product; in general, constitutes the foundation of supply chain strategy. The company reports a profit of Rs5.89 billion in FY23.



❖ P2P at Ismail Industries

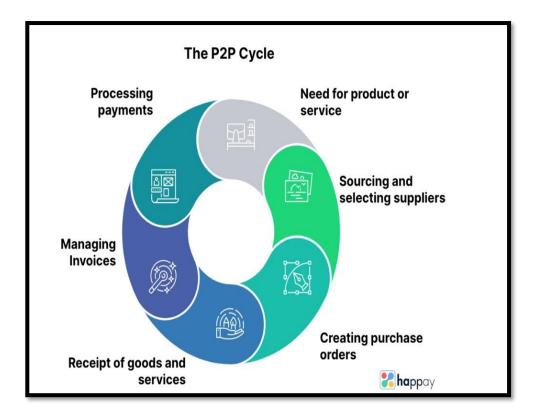
Ismail Industries Limited' Procure-to-Pay (P2P) procedure is a vital part of their supply chain management, utilizing the popular SAP ERP system to optimize operations. P2P is a widely accepted, standardized procedure. The coordinated process of requesting, acquiring, receiving, paying for, and accounting for products and services is called procure to pay, or P2P.

Its name comes from the fact that finance and procurement chores are sequential, ranging from the first stages in obtaining an item or service to the last steps in making payment for it.

P2P is a process, but it is frequently assisted by specialist software that is made to handle the workflow as a whole or just certain parts of it, including inventory and invoicing management, along with associated financial accounting procedures. A few essential documents are needed for the P2P process to go without interruptions from Procurement to Payment.

A Goods Receipt Note (GRN) is a proof of delivery that accommodates the received item with details of the Purchase order and certifies the receipts of goods as a few essential documents. The payer issues an invoice that lists the goods or services provided together with the owed amount to make the payment process easier. In some circumstances, bills may take the place of invoices and come with invoices as a demand for payment. In the end, the customer makes a purchase order which is a formal request to the vendor for the provision of goods or services within a particular guideline.

When taken as a whole, these documents guarantee that each phase of the peer-to-peer (P2P) cycle is thoroughly recorded, corroborated, and compliant with applicable laws and corporate governance guidelines.



Ismail Industries Limited offers a range of terms for payment to its suppliers; these terms usually include extensions of 30, 60, or 90 days. Effective cash flow management requires this kind of term flexibility, particularly when working with foreign suppliers. Letters of Credit (LCs), which need cash up advance to guarantee payment, secure transactions for imports.

A Letter of Credit is an enforceable commitment from the foreign buyer's bank to make payments to the exporter immediately as the goods are sent, provided the exporter's bank receives the required documentation as proof. The procurement process for a material can take 7 days to 4 months.

❖ Material Requirements Planning

The Material Requirements Planning (MRP) system is what sets off the material requirement. To provide a smooth data flow, the MRP system is connected to the ERP. Accurate Master Data, which contains crucial information like Manufacturing Lead Time (LT) and Transportation LT, is necessary for this system to function. These are the Lead times, which vary greatly depending on regions (45 days from the US, 30 days from Europe and China, and 15 days from Dubai), and are known as Procurement staff at Ismail Industries Ltd.



In Pakistan, they are the number one importer of Milk. Procurement's strategy has a big part of it as importing of high-volume items. The procurement process for these materials may take anywhere from seven days to four months and it depends on many variables such as manufacturing Lead time and shipment origin. For example, the complete time to receive a shipment may increase to four months if the product is made in the U.S. or Europe and has a Manufacturing lead time of 2.5 months.

Ismail Industries Ltd's P2P procedure needs to adjust to inconsistent prices of goods like full cream milk and cocoa powder. There are double threads of Currency devaluation and raw material price hikes. To mitigate financial risks effectively procurement values are to be made with strategic foresight.

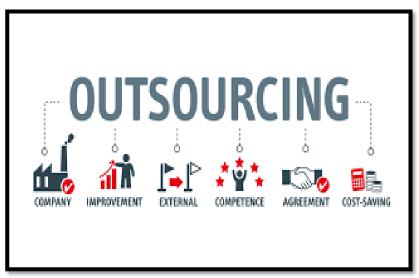
Aggregate Production Planning

To successfully manage its vast supply chain, Material Requirements Planning (MRP) must be integrated with Master Production Scheduling (MPS) and Enterprise Resource Planning (ERP) systems, preferably SAP. MPS-established production schedules directly derive demand and MRP is used to calculate the amount of Material. Because of their integration with SAP, these systems offer smooth data flow and up-to-date master data, which are essential for precise scheduling and planning. The company, an extensive milk powder importer, utilizes

this integrated system to manage complex procurement rotations and long lead times, which can range from seven days to four months, depending on the import's origin (e.g., forty-five days from the US or thirty days from Europe). In order to maintain effective and responsive supply chain operations, handling procurement strategies and reacting to market swings, such as currency depreciation or rising material costs, require integration.

❖ Outsourcing at Ismail Industries Limited

Ismail Industries Limited bases its choice to outsource particular supply chain components on strategic reasons, mainly related to the company's incapacity to produce certain materials internally or the strategic advantage that comes with outsourcing. The corporation outsources these components since it does not generate any raw materials that are essential to its operations, especially when it comes to things like packaging materials and glucose syrup. Even though Ismail Industries has its own company that produces glucose syrup and is the top consumer of the product overall, outsourcing is still required when internal production is unable to satisfy demand.



The two areas that are most frequently outsourced are logistics and warehousing, where businesses like DHL offer specialized services. The choice to outsource warehousing, for example, is impacted by the necessity of situating storage facilities close to retail and distribution centers in order to maximize logistics and minimize transportation expenses. This well-planned location satisfies the business's logistical needs while ensuring supply chain efficiency.

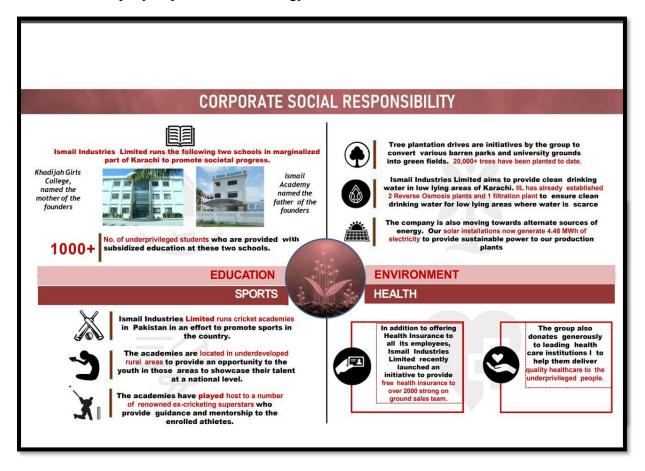
Strict guidelines are followed by Ismail Industries Ltd while assessing possible outsourcing partners to make sure that the company's efficiency and quality criteria are fulfilled by suppliers. This involves making certain that establishments such as transitory storage facilities uphold the same standards as the business's internal operations. While guaranteeing a smooth integration with the business's current procedures. The evaluation criteria center on the outsourcing partner's capacity to satisfy Ismail Industries Limited's operational needs and quality criteria.

Third-Party Logistics

Third-party logistics (3PL) Providers are essential to Ismail Industries Limited Limited's outsourcing approach. A 3PL service, such as warehousing, transportation, and storage is when supply chain operations are contracted out to a different company. Ismail Industries Limited uses 3PL because of its capacity to improve the impact of logistics, focusing on the best location and high standards of quality service that are consistent with the company's procedures. The company guarantees that these third-party facilities satisfy strict standards for logistical efficiency and quality control, by forming partnerships with 3PL suppliers such as DHL, thereby expanding the scope and dependability of its supply chain without sacrificing service quality. Ismail Industries Limited can ensure timely delivery and operational efficiency by maintaining a smooth flow of items across its supply network by strategically utilizing third-party logistics (3PL).

Sustainability Measures

Ismail Industries has factories powered by 9 megawatts of solar energy located at Port Qasim and Hub. This reduces the need to use non-renewable sources of energy. Moreover, it reduces the consumption of energy supplied by private energy providers, resulting in significant cost savings. A unit of product produced with solar energy is considerably cheaper now as compared to a unit produced with energy from the local grid, furthering advocating for the implementation of sustainability measures. Aside from solar energy, Ismail Industries is also leveraging other sources of renewable energy. The company has set up a joint venture with a Chinese company to produce wind energy.



The Joint venture is currently producing about 80-90 megawatts of wind power, out of which Ismail Industries' share is around 20 megawatts. When we combine power produced by solar and wind energy, around 40-50% of the company's power generation is done through sustainable sources.

The company always strives to reuse as much water as possible from the factory and utilize it in its agricultural activities to minimize the wastage of water. The company runs numerous schools in the Hub region specifically for young girls to promote literacy in that region.

Supplier Management

Selection of a New Supplier

Firstly, the need for a new supplier arises and is recognized. Some possible reasons why a new supplier might be required:

- 1. The company is making a new product, and the new product requires a material that cannot be supplied by the existing supply base.
- 2. The demand for an existing material has increased so much that it cannot be fulfilled by the current supply base.
- 3. The current supplier of the material is demanding an unreasonable price increase.
- 4. Quality or delivery issues with an existing supplier.

To induct a new supplier, the company carries out an extensive supplier evaluation process. This process starts with first communicating the material specifications to potential suppliers which acts as the initial filter and narrows down potential suppliers. Then a sample from the supplier is obtained and tested by professional laboratories to ensure a match with the material specifications and ensure the required quality.

Then the company deeply analyzes the processes, capacity, financial conditions, and secondtier suppliers to make sure the operations are running smoothly. Suppliers who first import are more scrutinized to minimize any delays in the delivery of raw materials. Supplier's customer base is also analyzed to see which other reputable organizations they are supplying to judge their credibility. Furthermore, the company also leverages its supply chain network across the countries to double-check the working, legal, and ethical practices, and compliance of potential suppliers. In a competitive industry like confectionery, prices quoted by suppliers also play a gargantuan role and greatly sway the decision-making process when it comes to choosing a supplier.

Evaluation of Existing Suppliers

The company cannot afford any delays, so existing suppliers are regularly evaluated based on key KPIs such as OTIF, quality issues, and financial mishaps. The best-performing suppliers are recognized with awards and are preferred for any supplier development activities.

Supplier Partnership

Ismail Industries actively partners with all its reliable suppliers and shares data with them to identify any opportunities for partnership and improvements. The company realistically has to partner with all of its suppliers, but the degree of partnership depends on their reliability. The suppliers that are the most reliable and supply core ingredients are classified as strategic suppliers of the company. The company engages in mutual problem-solving activities with them and invests in them to ensure their progress along with the company because, without them, the company won't be able to cater to its strategic customers. E.g. export markets. However, such suppliers are only a few as it involves a lot of coordination and collaboration.

AI in the Supply Chain

At Ismail Industries, AI is more useful in manufacturing settings. They receive equipment that is of the highest calibre. Machinery is purchased from the top manufacturers. It has a significant amount of digitalization. They take advantage of automated notifications; for instance, they are alerted when a procedure is underway so that they can act appropriately. Their goal is to implement IOT (Internet of Things) enabled operations throughout the supply chain, in addition to the factories. They are developing software that uses artificial intelligence (AI) to forecast and log all internal system characteristics. Also considered are outside variables like the weather. They are integrating AI into the company in this way.



***** Warehouse and Logistics

Ismail Industries possesses numerous warehouses spread throughout several cities. They have outsourced some warehouses as well. This model is hybrid. Orders that must be filled come in from many places inside their system. Order fulfillment takes place at the closest warehouses

to those locations. The factories oversee restocking those warehouses. The logistics staff and the warehouses are aware of the orders, inventories, and, based on past performance, the orders for the upcoming week. Considering a week's lead time. For a certain warehouse, they set criteria with the help of the customer service and planning teams. The transportation is completely outsourced at Ismail Industries. The order for the quantity of cars needed to finish the order is placed by the warehouse teams. After being loaded at the factory, the trucks head to their own or externally contracted warehouses. After being temporarily stored in a warehouse, the products are loaded for delivery. The logistics and warehousing staff are in charge of overseeing this entire procedure.



***** OTIF

They ended the previous year with 100 billion PKR in revenue. They are also rapidly growing their business. They'll close as one of the largest FMCGs in the business this year. From the perspective of customer service, their OTIF would be between 85 and 90%. This, given the size of their company and extensive network, is regarded as good. Their OTIF's manufacturing efficiency is approximately 90-91%.

The assumption must be 100 percent; they don't expect anything less than that. There is a on the off chance that they are getting anything between 90 to 95%, it is sufficient.

Incoterms

Depending on what you are purchasing and where you are purchasing it, yes. They make use of every Incoterm. They employ all of these incoterms: FOB, CNF, CNA, and CNI. Whether they order from China or purchase machinery from Europe depends on their needs. A huge organization like their place's orders with suppliers all across the globe. Because of the size of their company, there are occasions when they can obtain cheaper costs if they ship a machine

from Europe to Pakistan than they would have to pay if the supplier sent it to them. As a result, they employ several INCOTERMS based on the source of our purchases.

❖ Safety Stock and Lead Time

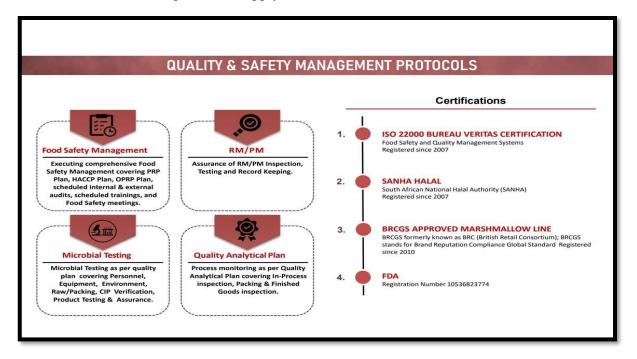
They are an extremely responsive association. They can change things rapidly. On the off chance that a specific good should sell 1000 containers, and they had around 600 containers in the warehouse, on the off chance that there are more requests, they can replenish to any corner in the country for a maximum time of seven days. It is just only a matter of days when renewal is expected from Karachi to Hyderabad. The quantity of days continues to add when they go up north. Their lead time is 1 to 3 days. They can rapidly change things and immediately supply. According to a safety stock perspective they hold around 15 days of stock which is the standard act of all great organizations that incorporate security stock.

***** Bill of Materials

Stock records are 99.5% precise. Their bill of material must be 100 percent precise; any other way and they'll lose cash hand over fist like anything. It comes from the plan and the recipe. These recipes are locked. Their bill of material is made by the research and development team and then it is supported by the group CEO of the association. Afterthat, it is put into the framework. It needs to go through this cycle since they are delivering a great many goods consistently. It is an exceptionally basic and significant piece of control that they have. They control what they make. The monetary part of the association is subject to it.

❖ Performance Standards and KPIs

The performance standards are based on the suitability and relevancy of the standards to the Ismail industries. The performance standards are used to assess efficiency, quality, cost, safety, innovation, and planning. The assessment is done through the analysis of key performance indicators of different stages of the supply chain.



Procurement:

- 1- Raw material cost per kg
- 2- Packaging material cost per kg
- 3- On-time delivery by supplier
- 4- Cost Savings driven by Procurement.

Manufacturing:

- 1- Production cost per kg
- 2- Production cost per unit
- 3- Wastages
- 4- Quality Control KPI

Innovation:

- 1- Number of improvement suggestions received.
- 2- Suggestion of new products
- 3- New products introduced.

Warehousing and Distribution:

- 1- Dispatch rate.
- 2- Warehousing cost per kg
- 3- Distribution cost per kg
- 4- Cost per mile
- 5- Cycle time.

Ismail Industries uses different KPIs relevant to different stages of the supply chain to keep track of their performance to identify the areas where the company can reduce costs to implement cost-saving measures.

Demand Forecasting and its technique

Demand forecasting is still in a nascency stage in Ismail Industries. It has adopted bottoms up forecast model than a top-down driven forecast model. Collaboration is at the heart of bottom-up forecasting.

In bottoms up forecast, each team forecasts their own sales, production and revenue which are influenced by their deep knowledge of the market and consumer demand. After that, the forecast is discussed on the basis of the historical run rate and the schemes that the company plans to do in the future. Bottom-up forecasting is formed after the unique insights from people who are involved in day-to-day operations of the business resulting in a more accurate and realistic forecast, After the discussion, the final forecast is finalized, which is called an agreed forecast. MRP and MPS is based on this agreed forecast. The bottom-up forecast results in an accurate and realistic number due to collaborative planning, but it takes a significant time after numerous meetings to arrive at the final forecast.

❖ Innovation in the Supply Chain

Ismail Industries started as a confectionary business. It expanded into biscuits, Bisconni. Now, it has 9 different businesses, each of which has its own supply chain. Ismail Industries has a separate marketing department that is dedicated to the development of new products according to the varying needs of the market, customer, and sustainability. It has positioned itself to offer products with unique features.

Behind every innovation, a company has sorted its supply chain first before releasing the product. The company must sort the procurement of raw materials, packaging, warehousing, and distribution.

This is quick, as the company releases new products every few months. The company has an edge over MNCs due to its rapid process, as MNCs have to follow certain internal controls that take a significant time.

The Ismail Industry introduces new products very frequently and rapidly. For example, they recently introduced a biscuit, daydream, in the market. The company has a set of innovation calendars that they are following and every other month, a new product is scheduled to hit the market.

The innovation is not restricted to just making new products. The company is committed to innovating its manufacturing process. For example, during the year FY23, the Company also commenced the commercial production of flour in the last quarter of the year having a production capacity of 240 TPD. Ismail Industries has designed its supply chain in a manner that it can cater to and introduce new products every few months. It can adapt to new market needs due to its production efficiency.



***** Frequent Obstacles and Recommendations

The supply chain faces some frequent problems given the political and economic situation of the country as well as the global supply chain disruption that are as follows:

- One of the main challenges the supply chain of Ismail Industries frequently faces is the restriction on imports. Pakistan's government frequently restricts imports to solve the current account deficit issues that hurt the manufacturing sector.
- Another factor is the rapid currency devaluation. Ismail industry is dependent on imported raw materials. The currency devaluation increases the prices of imported material which reduces the profitability of Ismail industries. To resolve this, company should follow the currency rates closely. It acquires its procurement of raw materials while keeping in mind the global supply chain disruptions, the local economic environment, and the outlook of the exchange rates. The Company, as required, enters hedging contracts to reduce the exchange risk.
- Manufacturing problems such as product line is down and manufacturing breakdown.
 Ismail Industries tries to resolve this by having its staff properly trained, using a good preventative maintenance management system, and keeping up with its maintenance schedule.
- Due to global supply chain disruptions, the company faces unavailability of different raw materials from time to time. A recent example is cocoa powder which has seen its price surge to about 5x due to recent cocoa harvest has been dreadful due to bad weather and tree diseases. To tackle this, the firm had to go for alternative materials and search for replacement or reformulation.
- Another challenge is the political instability of Pakistan. Some frequent protests and strikes undermine the operations of the company. The company must make sure that its products are available on the market at the right time.

Recommendations: To mitigate the danger of currency devaluation, Ismail Industries should consider currency hedging. To reduce the impact that currency or foreign exchange (FX) volatility has on the returns from overseas assets, a strategy known as currency hedging is employed. To lessen reliance on erratic markets, the company should consider sourcing from several geographical areas. In addition to that, sustain ideal stock levels to protect against price swings without having too much on hand. Moreover, creating backup plans in case of exchange rate fluctuations and increases in the cost of essential supplies. The bad weather conditions are something that is not in human hands, so Ismail Industries can search for alternate methods. The forecasting takes time after numerous meetings to derive a decision which is one of the biggest problems. Ismail Industries should improve more of its forecasting methods.

S&OP: Businesses use demand, supply, and financial planning metrics in tandem with their planning process as part of sales and operations planning. It fosters the ability to make wise decisions when it comes to approving a profitable and successful product. It is a business process and happens monthly. The demand is forecasted and there are different stakeholders incorporated. They decide on the demand and what needs to be delivered. Demand numbers are finalized and the supply chain processes are utilized. It determines the procurement process

and planning factor. Furthermore, It is related to distribution centers in the company. Sometimes demand forecasting becomes a challenge in such an inflationary environment. There are many further challenges in the supply chain. They can be cash flow problems due to demand forecasting is it is forecasted more than the actual.

Ismail Industries can use AI tools to forecast the information. Digitalizing the AI tools for forecasting rather than using conventional models. AI models can look at extrogin factors including circulation of money and crop cycle to bring forecasts closer to reality. A performance scorecard is used to critically analyze the KPIs together for better visibility and solutions.

• **Problem 1:** Restrictions on imports due to regulatory changes.

Strategy to overcome this: Increase localized sourcing and improve inventory management

Tactics to execute strategy:

- **1.** Identify and develop suppliers of raw materials in Pakistan that are imported to reduce import dependency.
- **2.** Prioritize sourcing from suppliers in countries having a free trade agreement with Pakistan e.g. China and Sri Lanka. This could allow the company to bypass some import restrictions.
- **3.** Utilize forecasting techniques to maintain sufficient inventories of critical imported supplies. This will minimize any sudden stoppages in production.
 - **Problem 2:** Currency devaluations increase the cost of production by making imported raw materials more expensive.

Strategy to overcome this: Deploy a comprehensive exchange rate risk management strategy.

Tactics to execute strategy:

- **1.** Leverage negotiation tactics against suppliers to extend credit terms when exchange rates are unfavorable. Must be done skillfully and not at the cost of supplier dissatisfaction.
- **2.** Encourage inter-departmental collaboration between finance and supply chain to utilize forward contracts and options in purchasing to lock in exchange rates.
- **3.** Closely inspect the use of imported raw materials to identify opportunities for wastage reduction.
 - **Problem 3:** Production line downtimes and machinery breakdowns.

Strategy to overcome this: A joint strategy devised by production and supply chain to minimize idle time of labor and production downtime.

Tactics to execute strategy:

- **1.** The supply chain should collaborate with production to optimize the production scheduling of labor and promote cross-training.
- **2.** The supply chain must maintain a sufficient inventory of critical MROs and other spares to minimize downtime during repairs.
 - **Problem 4:** Raw material unavailability due to global disruptions

Strategy to overcome this: Increase the visibility of the supply chain and increase the degree of supplier partnership.

Tactics to execute strategy:

- **1.** Utilize data analytics tools to understand real-time supply chain data. This will allow the company to track inventory levels and account for potential disruptions in advance.
- **2.** Keep information about supplier's forecasts, production and spare capacity, financials, and other potential challenges, allowing the company to prepare a backup plan in case of disruptions.
 - **Problem 5:** Disruptions due to political instability

Strategy to overcome this: Develop a contingency plan for transportation and logistics.

Tactics to execute strategy:

- **1.** Collaborate with logistics partners to develop alternative routes not affected by protests or strikes.
- **2.** Set up small storage facilities and super stockists closer to markets to ensure product availability. E.g. Metro can be used as cash and carry and general trades and LMTs.

❖ Appendix

As a group, we had our interviews on zoom during Ramazan. The managers were busy during Ramazan. We tried our best even after that, but the zoom interviews gave us complete knowledge of what we had to write in our report. This term project widened our information about the procedures performed at Ismail Industries.

