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JANUARY 2023

ISSUE-5

THE SUPPLY CHAIN STREET

CRAFTING AND SHAPING OUR SOCIETY

"Let us never negotiate out of fear.
But let us never fear to negotiate." -John F. Kennedy

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Advisory Board's Note

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This is my immense pleasure to share with you all that The Supply Chain Street magazine is publishing its 5th issue. The 5th issue comprises write-ups from different sectors' professionals such as sourcing, procurement, logistics, academician, technological enthusiasts and students as well. The content of the writings are diversified and cover practical approaches viewed from different angles.

Like the previous issues of The Supply Street magazine, I believe all of you will like to read this new issue as well. Finally, I would like to congratulate and wish all the best to the team who have been working for the magazine relentlessly.

As a member of the advisory board to The Supply Chain Street magazine team, I welcome you all to read the 5th issue of its magazine. Surely you will like the tone and content of its writing.

Today's supply chain market is still lagging behind skilled workforce and digital enhancement. To develop a skilled workforce, one should gather institutionalized knowledge and industry experiences. In pursuit of workforce development, The Supply Chain Street team is working to bring out the current market issues in front of the reader so that prospective young talents and professionals can have the insights beforehand.

Enjoy reading the issue and keep spreading your thoughts.

Arifuzzaman
AVP & Chief Digital Officer,
Bangla Trac Limited - Bangla CAT

Shahid Latif
Chief Supply Chain Officer
Energypac Power Generation Limited

With great pleasure I would like to share with you all that The Supply Chain Street magazine is publishing its 5th issue which will ignite the reader's mind into different perspectives.

The world is going through a tough time where supply chain professionals are in the driving seat to steer the businesses in the right way. It is very important for a supply chain manager to develop the capacity to handle the ongoing critical period. Crisis periods can be dealt with the right skill sets, foreseeing the next shift in business and so on. A supply chain manager having up to date business information, economic progression and willing to accept digital transformation will be the one to stand out in a million. The best way to steer the wheels to the right direction would very much depend on the leadership criteria a supply chain manager possesses.

The 5th issue covers all new aspects of supply chain management such as digital finance, technological approach in service, digital twin and so on. I believe this 5th issue will give the readers a new vibe considering the current situation in supply chain management.

Message from The President

Mohammad Ashraful Islam khan
Head of Supply Chain Advisory Services,
Management Consulting, KPMG Bangladesh

“The real competition is between supply chains, not companies.”– Martin Christopher

Being said, the focus of all business now relies on these 2 words “supply chain”. Nowadays core value creation activities are performed by the company’s supply chain. To become the game changer in business one needs to know the updated and latest information about supply chain. In relation to sharing the updated information, latest innovation, market scenarios and professional expertise, the supply chain street magazine is publishing its 5th issue.

To develop young talents at all levels of supply chain, The Supply Chain Street is in affiliation with prominent universities of our country, where day to day industry challenges will be discussed by industry leaders. To bring out the ultimate results, we need to collaborate across government and private industry to locate and cultivate outstanding talent who are competent enough.

In continuation to this, The Supply Chain Street (TSCS) and ZNRF University of Management Sciences (ZUMS) jointly organized a highly interactive event on “Supply Chain Transformation Strategy for Sustainability”. The event focused on Supply Chain networking & collaboration, career advice, Q & A session, Industry Revolution 4.0, Current global crisis and followed by our casual supply chain adda. This initiative is the first step to develop the future workforce and bring sustainability in the profession for days to come. We expect all of your support in forthcoming initiatives.

My heartiest thanks to all the members who worked on this 5th issue and are always exploring new possibilities. We gladly welcome any feedback you have in mind. Hope you will enjoy the articles.

Chief Editor's Note

Mohammad Mamun Chowdhury
Head of Supply Chain Management
Rahimafrooz Storage Power Business (RSPB)

Right at this very moment, the supply chain is facing threaten to its resilience. Due to the covid-19 outbreak and subsequent Russia-Ukraine war, China-Taiwan unrest, Dollar crisis, the business is facing challenges every hour which makes it even more interesting to keep the balance between demand & supply. Supply chains are becoming a symbol of disruption, insecurity and shortages, infrastructure shortcomings and more. Fluctuations in supply and demand cause ripple effects that impact every link in the chain, often in radically different ways. To portray the actual scenario, The Supply Chain street 5th issue covered knowledge sharing and research based writings from expert professionals and academicians.

The previous issues covered a wide range of topics on different sectors of supply chain starting from sourcing, procurement, distribution, and logistics. This 5th issue is covering diversified topics and their impacts in regular supply chain activities. Business analytics of apparel industry, supply chain innovation, supply chain finance and technological opportunities. Additionally, an interview session with Mr. Mohammad Al Kashem, Managing Director of Coats Bangladesh has been included in 5th issue, where he shed lights on from his own personal and professional experience for fellow professionals.

A new segment has been introduced in this 5th issue - Global Supply Chain News Corner. This segment will give a glimpse of current insights, innovation and discoveries related to different businesses around the globe. Hope the readers will enjoy this new feature.

I would like to “tip my hat” to the supply chain street magazine team for their relentless effort to bring out this magazine copy in front of all readers. We are also in pursuit of exploring diversified ideas and engaging potential writers to enrich the magazine in days to come.

Enjoy reading and don’t forget to give feedback.

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Fragile Economy-COVID-19 & Russia Ukraine War: Supply Chain Innovation is a Key to Move Forward

COVID-19 was nothing but a Black Swan event for supply chains which forced us to think about supply chain in a different way. The reason is that some of the effect on supply chain is temporary others are more permanent, resulting a paradigm shift in the way we think about supply chains of the future. When the world economy was recovering and we were getting hope that we can handle the shift in efficient & effective manner, we are now experiencing another unexpected but harsh reality - Russia's invasion of Ukraine. Russia's invasion of Ukraine has already resulted in the destruction of lives, homes, and infrastructure. The battle also jeopardizes the global economy's ability to recover from the COVID-19 epidemic. Policymakers must address several issues including inflation, food insecurity, energy security, and additional supply-chain stresses.

The battle in Ukraine brought the global supply network to its knees, if the pandemic had weakened it. Today's protracted conflict between Ukraine and Russia is the biggest threat to supply chains. Beyond uncertainty, it blocks the flow of goods like grain, gasoline, and auto parts through the market. Additionally, this significant impact on our supply chains is accompanied by near-weekly price hikes, adding fuel to the inflationary fires. As a result, most businesses and millions of individuals experience financial hardship.

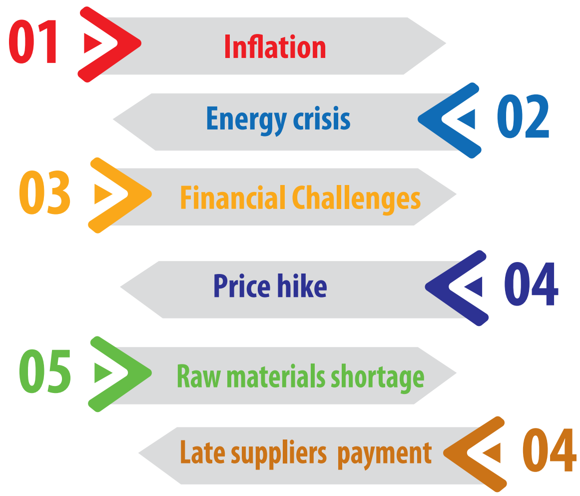
Nearly 600,000 enterprises globally, with just over 90% based in the US, are dependent on Russian and Ukrainian suppliers, according to a new Dun & Bradstreet analysis titled "Global Business Impacts: Russia-Ukraine Crisis." Oil, gas, wheat, corn, sunflower seeds, semi-finished iron goods, and other necessities of American that are shipped from Russia and Ukraine contribute to those high numbers. Finding new markets for these products has therefore suddenly gained urgency.

Both Russia and Ukraine are significant exporters of some of the most essential goods in the world; according to recent research, 241,000 and 374,000 firms worldwide respectively utilize Ukrainian and Russian suppliers.

The price of crude oil and gas has rapidly increased, which is having an immediate impact, in addition to the effects of newly implemented economic sanctions and previous inflationary pressures on energy-intensive industries. However, depending on the length and complexity of their supply chains and pre-existing levels of stock, some businesses may not yet realize the extent to which their business model is affected by the crisis in Ukraine.

At a time when many organizations are still recovering from pandemic-related financial challenges, a perfect storm of factors could see them experiencing a fresh cash flow crisis over the coming months. Due to shortages, it may become impossible to transport items to consumers and alternative suppliers may be less ready to accept favorable conditions for payment, in addition to having to pay more for essential components and supplies.

The company may find itself in a difficult situation with respect to cash flow if it is unable to quickly pass on increasing expenses to customers. It can become harder for firms to close cash flow gaps if interest rates rise, raising the cost of borrowing.



There are several steps that can be taken to lessen the effects of the war in Ukraine on the supply chain and safeguard their financial position. Increased competition, more demanding customers and the uncertain economic environment have placed innovation at the heart of many companies' growth strategies. Improving the top line performance for organizations in these times is riddled with unpredictability. However, adopting innovative practices in supply chain directly impacts bottom line performance in the following ways:

1. Increased profits: either through reducing costs, finding new markets or increasing market share;

2. Improved communication with the supply base: Identification of strategic suppliers critical to their supply chain, and improved supplier performance to share savings are all examples of supplier management

3. Controlling risks internally and externally:

• Internally improving the identification and management of risks leads to better control of risks and minimizes any unpleasant surprises.

• Creating stronger relationships with external stakeholders leading to better communication and a better awareness of potential issues/ upcoming risks and opportunities.

Major tools and techniques that can be used for supply chain innovation are discussed below:

Cross functional involvement:

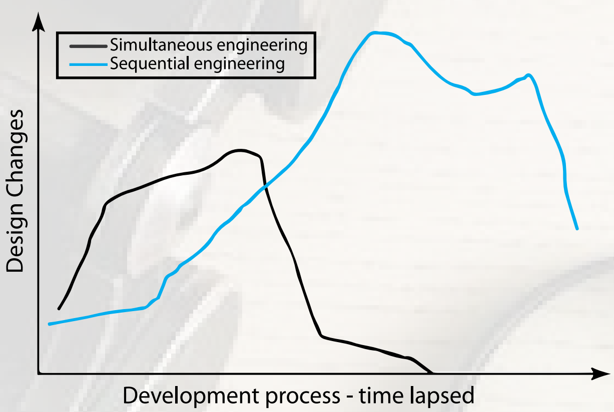
Supply chains bridge organizational silos and link businesses together. As a result, supply chain commonly involves team members from many functions. A supply chain might include people from business development, customer services, shipping, receiving, manufacturing, information technology, accounting, and human resources. One excellent strategy to build a large network and gain a thorough understanding of the complexity of supply chains is to manage cross-functional supply chain teams.

Simultaneous or 'concurrent' engineering:

Traditional 'over-the-wall' engineering considers development from an assembly line perspective –each function completes its task before passing it on to the next team or stage.

In simultaneous or 'concurrent' engineering, different functions work on tasks simultaneously and collaborate. This results in a sharply reduced development time.

The three principles for implementing simultaneous engineering are as follows.



• Mapping the design space
• Integrating by intersection
• Establishing feasibility before commitment

Elements required for simultaneous engineering to be successful are as follows.

• Effective teaming
• Support of senior management
• Provision of resources
• Flexibility
• Open communication channels
• Critical thinking among the team members

Early supplier involvement

Early supplier involvement involves co-operation between suppliers (or the supply market) and the procurement organization.

• This can occur at the beginning of a new procurement project or at the product conceptualization stage when developing a new product.

• Supply partners may be involved in developing specifications ahead of a decision to procure a product. This can help to avoid unnecessary risks during the development phase.

• Early supplier involvement can help procurement make decisions about the process of awarding a contract.

• Suppliers must determine whether they are willing to invest in the relationship with the organization through a cost–benefit analysis.

• The role of different suppliers and the requirements of different development projects should be assessed to determine the level of involvement needed for the process, and the priority level for supplier involvement.

• Consideration should be given to how manageable and economical supplier involvement will be for each project and process development.

E-procurement

The practice of requesting, ordering, and buying goods and services online is known as electronic procurement, often referred to as e-procurement. It involves business to business transactions. E-procurement links suppliers and customers through a web interface or any other type of networked technology. Utilizing an electronic procurement system's optimum pricing and timing for purchasing goods or services is its main objective. It's crucial for firms to build relationships with suppliers if they want to achieve this goal. This makes it possible for procurement staff to bargain deals with suppliers. Within the e-procurement platform, they can also establish rules or restrictions regarding budgets and spending.

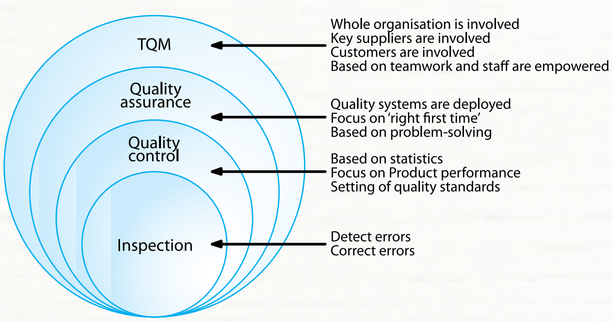
E-procurement eliminates the need of manual time-consuming procurement-related processes including eAuctions and eTenders, exchanging supplier contracts, and completing questionnaires for supplier onboarding.

Using a centralized platform, the process connects multiple entities and processes. One of the most crucial elements of e-procurement is vendor/supplier management. Supplier relationship management and supplier information management are also included.

Total quality management

Quality assurance aims to stabilise and control the processes that deliver quality, TQM aims to improve them.

Standards for TQM are based on seven quality



management principles.

• Customer focus.
• Leadership
• Engagement of people.
• Process approach
• Improvement
• Evidence-based decision-making
• Relationship management

Lean thinking & lean supply chain

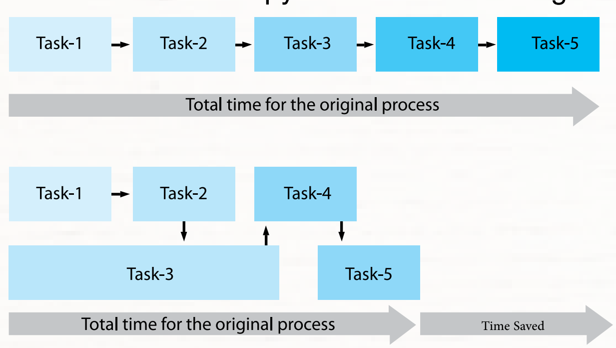
Lean techniques and emphasis are applicable anywhere there are processes to be improved, including the entire supply chain, even though lean thinking is often applied to manufacturing. A lean supply chain only produces what is needed, in the needed quantity, at the needed time and place.

To produce more or accomplish more with less resources while providing the end user with exactly what they desire is the central idea of lean thinking. Focusing on each product and its value chain is necessary. Organizations must be prepared to inquire about and comprehend which operations actually needed and which ones are wasteful. The most crucial thing to keep in mind is that lean doesn't just focus on cutting waste; it also aims to increase value.

Business process re-engineering (BPR)

Business process re-engineering (BPR) aims to get to the root of why and how things happen the way they do. It should result in dramatic changes to deliver improvements in measures of performance such as cost, quality, service and speed.

Recurring re-engineering themes identified by Hammer and Champy include the following.



• Combining multiple tasks into one to reduce waste
• Workers making decisions to remove waste
• executing the process stages naturally rather than rigidly sequentially to shorten the time needed from beginning to end
• Having multiple versions of processes, each aimed at a different need
• Where working makes the most sense
• Reducing checks and controls
• Identifying a single point of contact for customers
• The use of hybrid centralized/decentralized operations, which allows team accountability

while benefitting from economies of scale.

Life cycle analysis (LCA)

Life cycle analysis (LCA) is defined as follows.

- It is the process of measuring material and/or energy flows over the entire life cycle of the product, from the extraction of raw materials to the disposal of the product by the user.
- It provides an understanding of the impacts and hotspots that need attention, which can identify modifications needed to improve the product's environmental performance.

ISO 14040 sets out four stages for an LCA, as follows.

- Goal and scope stage. Sets the context, boundaries and assumptions for the study
- Life cycle inventory (LCI). An inventory of all the material flows, energy flows and emissions at each stage in the life cycle
- Life cycle impact assessment (LCIA). Quantifies the environmental impacts of the life cycle inventory. The material and energy flows are translated into their contribution to the environmental impact categories defined in the goal and scope stage
- Interpretation stage. Assesses the reliability of the results of the assessment and determines what conclusions, limitations and recommendations can be drawn from that assessment.

Most LCAs involve several iterations until the most reliable results are achieved.

Companies recognize the importance of having a skilled supply chain workforce and the subsequent savings gained from a better trained and capable team. Going back to supply chain basics, such as closer working with partners to define requirements and ensuring a low cost of acquisition through improved processes and training, has ensured sound foundations on which an environment for innovation can be built. The maturity of the supply chain function also has an important role to play in innovation. As a supply chain function matures, the level of cross-functional collaboration increases, its knowledge of the constantly evolving supply market improves, and the vision of future trends and suppliers develops.

Sheikh Nafiz Ahmed
Senior Manager, Procurement
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Business Analytics-The Forgotten Pillar of Bangladeshi Apparel's Industry 4.0 Dream

Background:

"Industry 4.0" is the buzzword in any discussion regarding the future of the Bangladeshi apparel industry. It seems that everybody is eagerly waiting to embrace this precedented challenge. However, do our actions reflect our eagerness? How well prepared are we to handle the colossal amount of data during the "Fourth Industrial Revolution"? Are we giving enough emphasis on "Business Analytics" which is one of the foundation pillars for Industry 4.0?

Industry 4.0, smart manufacturing and our misconception:

In simple terms-Industry 4.0 is a form of collaboration and connectivity among elements (machines, people, raw materials, work in process, finished goods, etc.). This concept is highly beneficial for both the forward and reverse supply chain The sole goal of this collaboration is to utilize the vast amount of data to achieve seamless interaction between smart machines to create a smart factory.

Figure 1: Connectivity in Industry 4.0

With the successful utilization of data coming through connectivity, operations can be kept in synchronization. Consequently, productivity, efficiency, and effectiveness will increase. "ManufacturingChangeability", "Flexibility Manufacturing", and "Sustainable Manufacturing" all can be achieved as an outcome of this synchronization. Owners and investors will get a great "Return on Investment" (ROI) through increased revenue, higher margin, less wastage, etc.

Interestingly, there is an ingrained bias in the concept of "smart manufacturing" which gets reflected by peoples' focus only on- "smart machines". This is the mistake made by even the sharpest leaders. Industry 4.0 is not only about having cutting-edge machines. Without managing the enormous amount of data generated through the connected systems, the vision of having a so-called "smart factory" will simply be an expense in the income statement. Audit firm BCG shows the necessity of having highly skilled people for "Monitoring and Managing" through the above figure in one of its articles. We can easily infer that the more skilled people will be in handling data coming from these smart machines, the better will be the synchronization in the supply chain. Finally, Key Performance Indicators (KPIs) will grow accordingly.

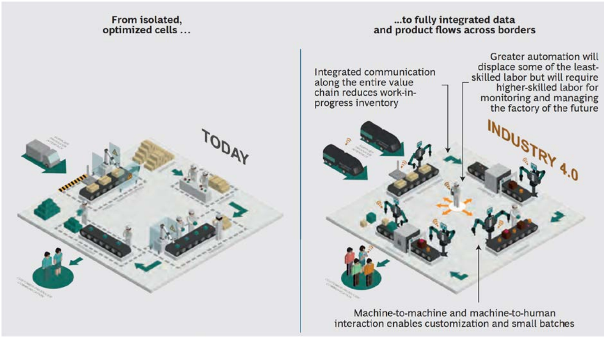

Figure 2: Transformation from traditional manufacturing to smart manufacturing

Prevalent issues curtailing preparedness for industry 4.0:

Many apparel factories are lagging in preparedness for industry 4.0 due to multiple reasons. Some noteworthy are the following-

1. Lack of information flow, the majority workforce in those factories seems to work on a strictly "need to know" basis.

2. Application of advanced concepts of "System dynamics", and "Simulation" are not promoted in decision-making

3. The true power of "Business Analytics" has not yet been fully utilized.

Firstly, ensuring information flow without any doubt is the key to being prepared. Before moving into Industry 4.0, the mindset of compartmentalization and suboptimization should be eliminated. We can call it *"Connectivity among stakeholders before connectivity among machines"*.

Secondly, detailed knowledge of "System dynamics" and "Simulation" for the apparel industry is immense as it works with multiple tiers of suppliers and customers at both ends of the supply chain. The impact of the "Reinforcing loop" and "Balancing loop" present in business is often overlooked, creating suboptimization and total cost hikes. Simulation platforms are rarely used for critical decision-making like investment in warehouse expansion. Checking feasibility through simulation has become a globally accepted norm.

Lastly, "Business Analytics" and its significance are not much-discussed topics in the apparel industry. The time has now come to reflect on what we have done to achieve proficiency in Business Analytics as an industry. How many factories have this department? What kind of insights are they providing? Do the visualizations currently employed support C-suite executives' effectively while making business decisions?

Impact of unstructured data- a pure recipe for long-term disaster:

Apparel factories store a vast amount of data primarily in four mediums-on paper, Microsoft excel, ERP, and cloud storage. The formatting of data is still a big issue as various teams and stores use the same data under different names. For instance, people from the same merchandising department may call the same sales forecasting data by different names based on the terminologies of their concerned customers. This is reflected in the databases creating confusion regarding business parameters.

Finding precise information amidst this unstructured pile of data leads to a huge loss in productivity and money. Let's imagine the situation for an imaginary RMG factory:

Context	Cost in USD
Per minute cost for factory operation (SMV)	0.07
The average time loss per day due to unstructured data (minutes)	30
The average number of employees in merchandising	30
Working day	26
Wastage per month	1,638
Wastage per year	**19,656**
Wastage on a 10 year timeline	**1,96,560**

Table 1: Long-term loss due to unstructured data in an imaginary factory

Due to unstructured data, the impact is around 200K USD on a 10-year timeline in only one department consisting of 30 people. This amount is a pure loss for the owner and investors. If we consider more departments and more people, the amount will be a staggering one

What if organizations use advanced analytics tools like Python, Machine learning, SQL, and NLP? Then data would be more structured, easy to find, and more reliable. Over the course of 10 years, the company would save around USD 200K. If the same organization used resources like Tableau, and Power BI, this issue would have been better understood by the leadership team. The leadership team can choose from a wide range of software solutions for "Business Analytics".

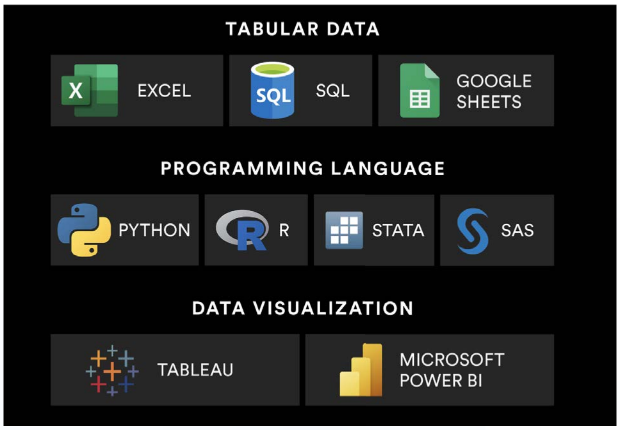

Figure 3: Tools for Business Analytics

It is now evident that the ultimate sufferers due to poor analytics are the business owners and investors. Undetected, unstructured, unreliable presentation of data often creates financial disasters. Only because of this, many potential endeavors never see the light even after the stakeholders' deepest and honest interest.

The answer is in human capital:

Let's now consider a different approach instead of taking a "leap of faith" toward Industry 4.0. Human capital can be a that different approach. Traditionally, most of the business and engineering graduates from leading business and engineering institutions of our country prefer to serve in the MNCs from Telecom, FMCG, and Banking industries rather than apparel factories. In terms of analytical ability, critical thinking and problem-solving - these graduates possess outstanding skills. If they start working in analytics-that would be a game changer. It can be an interesting idea to utilize those Bangladeshi-born talents in to establish "Business Analytics departments" in the factories.

Strategic shift towards building foundation of business analytics:

Based on ROI analysis, market reviews, and research data- the leadership team will be able to look at the 5- or 10-year horizon instead of just the next 12 months regarding the direct and indirect benefits (financial, technical, strategic, operational, etc.) of having a strong "Business Analytics" team.

Strategically, they will make decisions regarding the human capital of the business analytics team including specific projects suitable for the factory. The author recommends a fast-impact project instead of a hypothetical one to gain momentum. Inspiration can be taken from concepts like ***"Kaizen Blitz"***.

Based on strategic directions, talent acquisition teams will then start crafting recruitment tactics. World Economic Forum (WEF) has named it ***"HR 4.0"*** (a framework for shaping people's strategies to fulfill the necessary human capital need for 4IR)

The author would like to put special emphasis on talent acquisition teams as they execute the strategies operationally. Attracting top graduates is crucial as this will create what the author says is- the "Peer Effect". More talented minds will attract more talented minds. (This is the reason why top graduates prefer to study at Harvard, Oxford, MIT, and other institutions) Talent acquisition teams must devote time to craft a tactical and operational plan to train the existing workforce as they already know the organization thoroughly. It is a well- known fact that existing employees can provide faster output than the recruits due to the learning curve phenomenon.

This outcome is aligned with the commonly used learning and development model known as the "70-20-10 rule" (70% of learning is done through on-the-job experiences, 20% is through informal learning from interactions with

Figure 4: 70-20-10 Model for learning

others, and 10% is through formal learning. Current employees have more experience on the job so, the output will be higher from them.

In the workplace, factual illustrations can be placed using Power BI or Tableau to increase data awareness among stakeholders.

Business analytics and direct increase of the bottom line:

If we can predict when the machine will have downtime on a sewing floor, we will then be able to do the preventive maintenance without interrupting production hours. As breakdown time directly takes a toll on SMV therefore, it will reduce CM (Cost of making). This will subsequently improve the bottom line and thereby provide a highly coveted cost advantage for the business stakeholders.

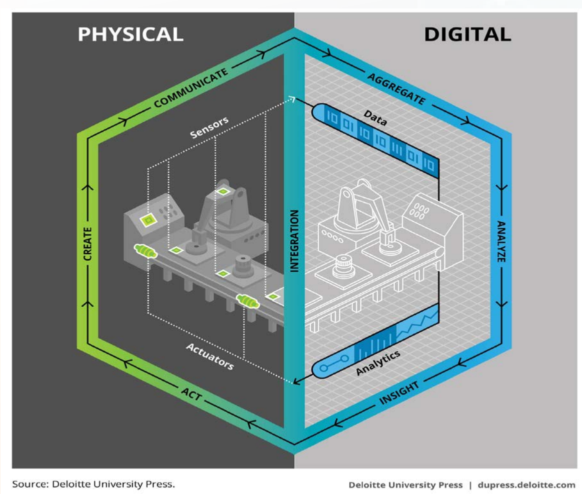

Figure 5: Digital Twin in Industry 4.0 context

This preventive maintenance can be achieved by utilizing data coming from "Digital Twin". Using previously collected data on machine downtime, a supervised machine learning algorithm can schedule preventive. Then the business analytics team can show the amount saved through such endeavors to the stakeholder on a weekly, monthly, or yearly basis.

This concept is not new. In Norway, the maintenance schedule of bridges is now predicted by sensors using the digital twin concept. In 2020, this technology predicted structural complications in the "Stava bridge" along Norway's main north-south highway. Subsequently, vehicles were directed to another way to save human causality.

Hugo Boss (a German luxury fashion brand) is one of the pioneers of Textile 4.0. It has established a smart manufacturing factory in Izmir Turkey where Robotics, artificial intelligence, and data collection. are heavily implemented. They are already using digital twin to its advantage. Robots that can predict maintenance collect data from human requirements, and schedule line machines, and components. This can be an interesting case study for industry leaders.

Figure 6: Hugo Boss's smart factory in Izmir-Turkey

Conclusion:

As a nation, we are truly blessed to have such an industrious workforce in our apparel industry. However, the fierce competition on the global platform requires more than just hard work. The current situation truly demands a mindset envisioned by Allen F. Morgenstern with the famous phrase "work smarter not harder". Our collaborative response to strategic, operational, and tactical preparedness toward Industry 4.0 will define whether Bangladesh will be able to grab a bigger share of the astounding USD 1.53 trilions of the global apparel market or not.

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A Liquid Future

Beverage Industry of Bangladesh & its Prospects

INTRODUCTION

The large population in Bangladesh has been a blessing for the country from a business perspective as one of the key indicators of business attractiveness is population. Like many other businesses, foreign beverage giants have also entered Bangladesh and doing business for over a decade. Alongside global giants like The Coca-Cola Company and PepsiCo, local companies like Pran, Akij Food & Beverages Ltd (AFBL), Partex Beverages and many others are competing head-to-head with each other. As years passes by, the beverage industry has seen a rising trend over the period[1]. Although some legal restrictions (like, taxation, import duty on raw materials etc.) hamper the business, the trend is still uprising.

All the major players offer a variety of beverage products in the market. Apart from drinkable water, Bangladesh's beverage market comprises of three categories of flavored beverages – dairy based beverage, carbonated beverage, and juices & nectars. Beverage companies are one of the major producers of plastic waste as most of the offered brands' packaging (including bottles, caps, and labels) is made of plastic. Bangladesh has a poor waste management infrastructure thus the rising trend of beverage consumption challenges Bangladesh's target of achieving environmental sustainability, mentioned in Agenda 2030[2]. The increasing demand for beverages must be met with efficient and effective supply chain management procedures. However, the challenge is to keep supply and demand of the market consistent, keeping environmental sustainability in mind. The carbonated water market comprises the largest proportion of the overall beverage market value in Bangladesh, and this is the only category where international players are competing with local players in the country.

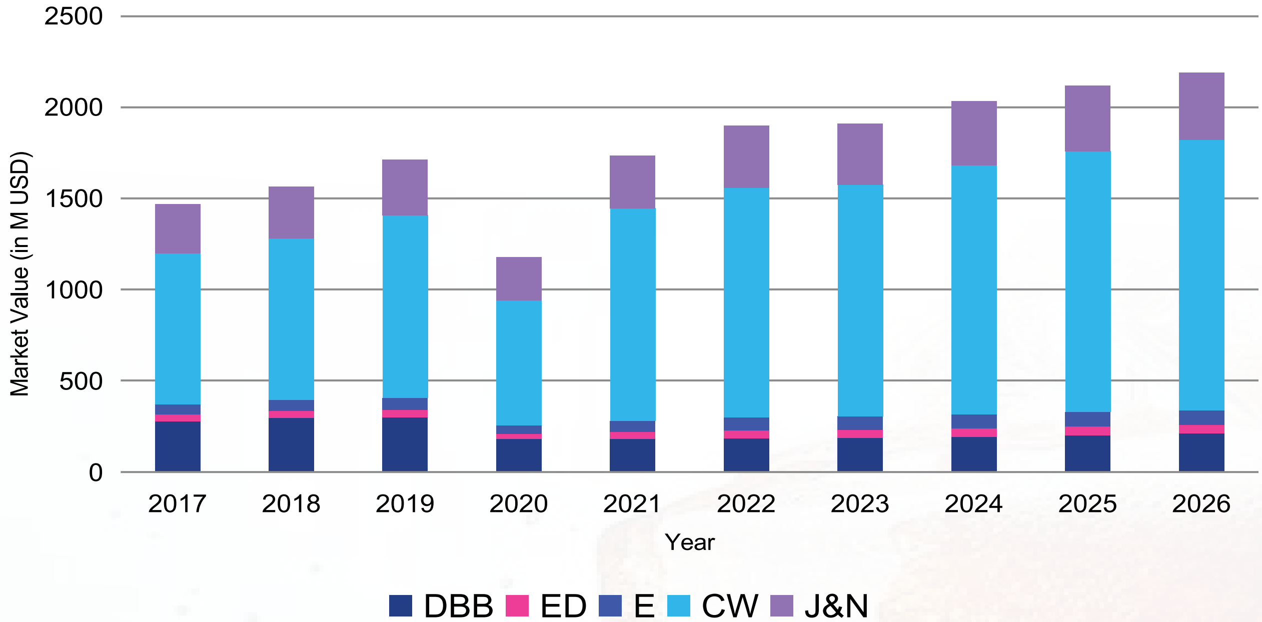


Figure 1: Bangladesh beverage market value and Composition Ratio for the period 2017-2021 (Actual) and 2022-2026 (Forecast)

Note: DBB = Dairy Based Beverage, E = Electrolyte, CW = Carbonated Water, J&N = Juices & Nectars, ED = Energy Drink

OBJECTIVE OF THE STUDY

The study tries to identify the trend of Bangladesh's beverage industry for future periods to determine growth of the market in the coming years. The study also focuses on key marketing and supply chain practices by the major players focusing on environmental sustainability and the challenges they face. The research also provides suggestions for improvement that may guide the business planners and policymakers to take a better economic decision.

METHODOLOGY

The study is based on secondary and primary sources. The secondary sources include published journal articles, news sources, books, and globally accepted data centers. Primary data is collected through interviews with industry experts of the beverage market.

ANALYSIS & DISCUSSION

Market Offerings

In Bangladesh, apart from drinking water, the offered beverages can be categorized into 5 categories - Carbonated Water (CW), Juice & Nectars (J&N), Energy Drinks (ED), Electrolytes (E), and Dairy Based Beverages (DBB). Both, domestic and foreign players are in this market. Apart from carbonated water segment, the domestic players dominate the market for other segments.

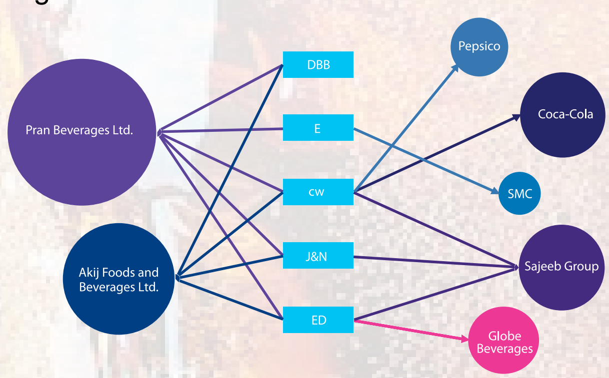


Figure 2: Major players in Beverage market of Bangladesh and their product category

Note: DBB = Dairy Based Beverage, E = Electrolyte, CW = Carbonated Water, J&N = Juices & Nectars, ED = Energy Drink

Among the players, Pran Beverages Ltd. is the only player having products in all the categories. Pran has a wide range of beverage-based products in all segments. The most recent diversification took place in the electrolytes market by Pran beverages through “Active Plus”.

Consumption Pattern

Bangladesh’s beverage consumption per capita is growing periodically. Apart from Covid 19 impact that had struck in 2019-2020 period, the consumption grew steadily. Among the categories mentioned earlier, the greatest amount of consumption comes from carbonated beverages and is expected to grow as years passes by. It is estimated that in near future, expenditure on carbonated beverages per capita may surpass the expenditure on milk and dairy based products per capita[3]. Shahjahan et al. (2019) claimed that nearly 50% of the school-going children consumes carbonated drinks on a consistent basis[4]. Usually, beverages contain artificial flavor and high-level sugar concentration, that is often injurious to health. With addition to it, unhygienic maintenance of raw materials often creates an apocryphal situation. Years back, Pran faced a backlash from the high court for not maintaining proper quality in producing juice and nectars.

In Bangladesh, carbonated water is proportionally the highest consumed beverage item after water. Study reveals that the core purpose behind greater consumption of carbonated beverages is that consumers believe that it is a tool for removal of tiredness[6]. A number of studies claim that high intake of carbonated water is the reason of several health issues including – weaker bone structure[7]. obesity [8,9], oral problems[10] and more.

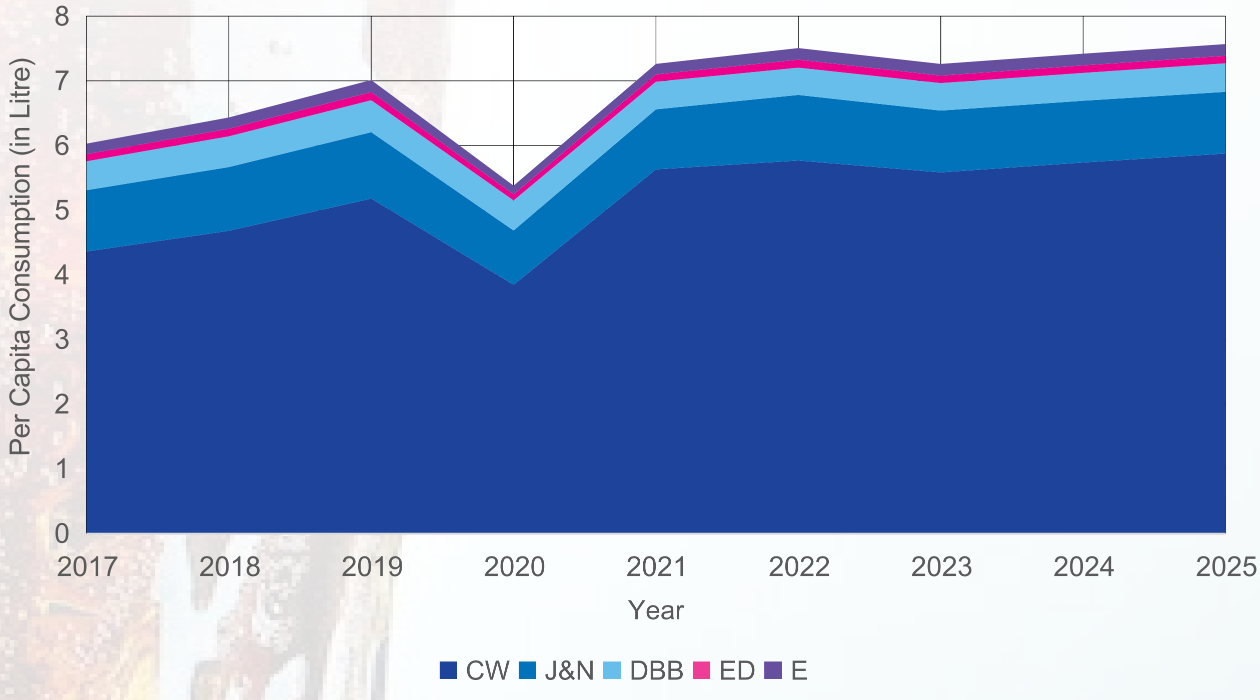


Figure 3: Per capita consumption of beverages in Bangladesh from period 2017-2021 (Actual) and 2022-2025 (Projected)

Note: DBB = Dairy Based Beverage, E = Electrolyte, CW = Carbonated Water, J&N = Juices & Nectars, ED = Energy Drink

An interview with the CEO of a leading international carbonated beverage company revealed that the consumption habit of carbonated beverages has not yet reached to a mature level. Another constraint for the industry is higher pricing. The companies fail to offer the price at a lower range as packaging material is mostly imported, transportation cost is higher due to increasing fuel price, prices of locally sourced raw materials often fluctuates and high tax rate on beverages. The supplementary duty for beverages is 25% in Bangladesh which is quite high compared to other countries and additional tariffs including value-added taxes account for 43.75% of the total expense of beverages in Bangladesh, making the product's final cost significantly high[11]. This creates a strong barrier for the industry growth as high taxation increases the final price of the product that creates an inverse relationship with consumption, as the product is not a necessary good. The tax rate for beverages is significantly high in Bangladesh compared to neighboring countries like India - 40%, Nepal - 38.43%, Bhutan - 30%, and Maldives - 6%[12].

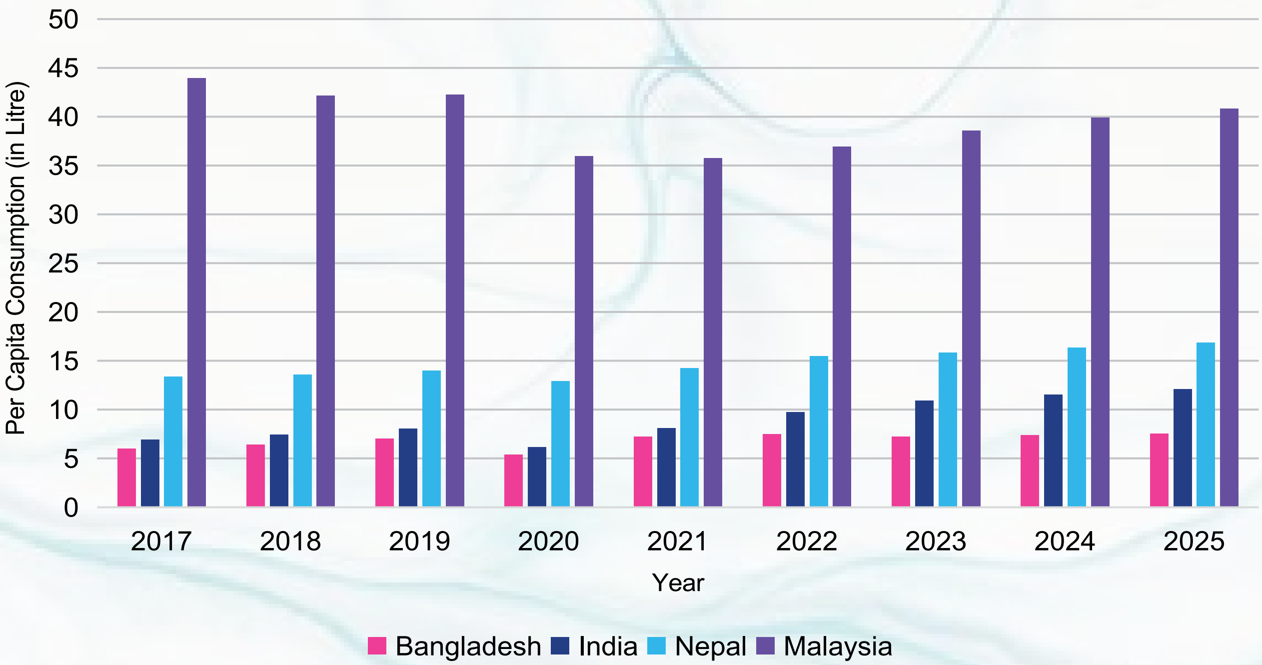


Figure 4: Comparison of per capita consumption of beverages among Bangladesh, India, Nepal, and Malaysia

Even though consumption of beverages like carbonated water and dairy based drinks are gaining more popularity and the consumption is rising, the consumption trend when compared to neighboring countries is still far-fetched. A comparison is drawn in Figure 4 to showcase the difference of beverage consumption in countries like Bangladesh, India, Malaysia and Nepal. Among the mentioned countries, the per capita consumption is drastically lower for Bangladesh.

Market-barrier analysis

Porter's Five Forces is a model that identifies and analyses five competitive forces that influence any sector and assists in determining the weakness and strengths of a business. Analysis of the Five Forces is widely used to define company strategy by identifying the structure of an industry[13]. The beverage industry has a higher supplier bargaining power and a moderate threat of substitutes. The threat of new entrants is moderately high as well. However, for each product segments, the competitive landscape changes drastically.

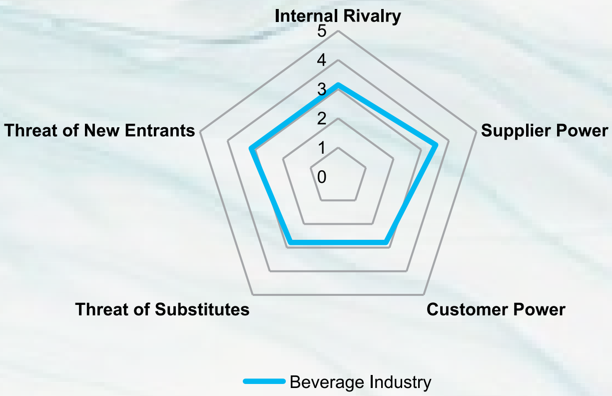


Figure 5: Porter's Five Forces Analysis for Beverage Industry in Bangladesh

The threat of substitutes remains high for juice and nectars since replicating the product and sourcing raw materials is easier for the segment. Most of the major players in beverage market of Bangladesh has a juice and nectar product in their product line. Although there is a high supplier bargaining power, the threat of substitute for electrolytes segment is lowest among all. For such reason, only two players in the market for this segment is SMC and Pran.

The carbonated water segment although has a high customer bargaining power and internal rivalry, as both domestic and international players have product segment for such category, the market is mostly dominated by the multinational players like The Coca-Cola Company and Pepsico. Particularly, Coca-Cola sources its water, sugar, and other basic materials domestically like other players. However, due to their historical reputation of secret coke recipe, the cola recipe is imported directly.

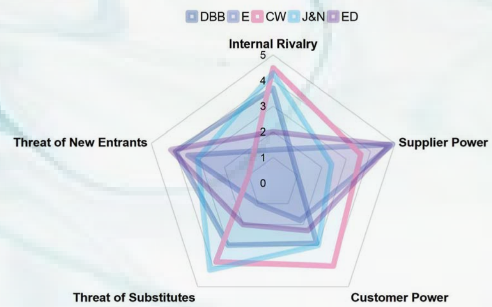


Figure 6: Porter's Five Forces Analysis for Product Segments in Beverage Market of Bangladesh

Production volume situation of key competitors

The beverage market is growing on a periodic basis. Due to the behavioral and cultural shift, the consumption is increasing that is driving the demand upwards. Apart from Covid 19, when demand fell, the production to meet the demand was growing at a linear trend. Of the major players, PepsiCo alone with their carbonated beverage segment produced the maximum amount of the total production in the market. Partex beverages remained 2nd in terms of production volume in the carbonated water segment in Bangladesh's marketplace.

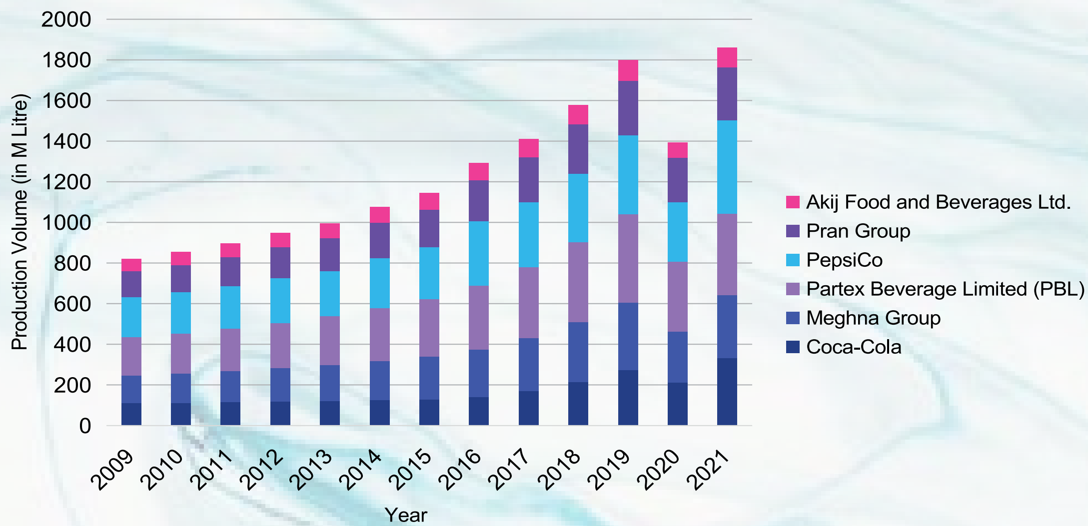


Figure 7: Carbonated Beverage Production volume and composition ratio of key players

Key strategic approaches by key players

The key players in beverage industry have their own strategic approaches to create distinctiveness in the red ocean market. The understanding is based on primary analysis of the approaches taken by respective companies. On some occasions, the strategy differs based on SKU's and product categories. Table 1 explains the key strategic approaches of some major players in recent years.

Strategic Approach

Pran's strong distribution allows the company to have a very high area coverage. However, Pran's most common approach in the beverage industry is creating a cannibalization effect. Pran has a number of brands that produces same category-based beverage item. They also follow a basic level packaging and often their bottle sizes differ from brand to brand. Pricing is mostly followed at a cost-plus pricing method and the company mostly follows a cost leadership approach.

Akij focuses on differentiation strategy. One of Akij's key feature is their superior quality of beverages. Akij's strategic packaging involves common bottle designing for all products and longer radius of the bottle cap. Common bottling design for dairy based beverages, carbonated waters and juice & nectars gives Akij the flexibility to reduce packaging cost. Increasing the radius of bottle cap ensures faster consumption of their superior quality beverage items that often keeps an unmet demand in the consumer mind, eventually creating the intention to rebuy in the consumer mind. The brands "Farm fresh" and "Shake" follows the same strategy that has showcased a significant impact in the market and an alternative to

For carbonated water segment, Akij follows a cost leadership strategy. Akij usually charges significantly less for their carbonated water segment beverages compared to its competitors.

The Coca-Cola Company recently introduced 250 mL. ecofriendly PET bottles. The bottles seem smaller but by reducing the radius of the cap, the brand ensured greater consumption time for the product to make consumers feel drinking more coke than usual.

Another key strategic approach in terms of bottling is done for the glass bottles. Since Coke follows a differentiation strategy and usually charges higher retail price, Coke introduced a 175 mL glass bottle to match competitors' pricing.

PepsiCo, operated through Transcom Beverages in Bangladesh, has an upper hand in strong distribution through Transcom Distribution. PepsiCo follows a cost leadership strategy.

One of the most unique approaches done in the beverage sector is by SMC. From eco-friendly Tetra pack packaging to the most unique distribution method, SMC Plus created an uncontested market space. SMC is the first company to practice a dual-contrast distribution strategy – distributing a beverage product through completely contrasting channels (Small retail stores and Drugstores). The superior quality and trustworthiness towards the brand reduce the limitation of low production capacity of the brand, while Pran is actively trying to grab the market with their brand of Active Plus.

Analysis of vertical integration strategy and supply chain

In order to gain a competitive advantage, when final product shares a common set of raw materials, the companies diversify their product line. A common approach of vertical integration is practiced by most companies of the beverage industry operating in Bangladesh. Mostly, dairy based beverage brands go for a forward vertical integration to ice cream as both products share the same raw raw material – Milk. Companies like Pran, Akij, and Milk Vita who operate in the dairy market either has presence or is planning to expand to the ice cream market as they often supply their milk in a powdered form to the ice cream manufacturers.

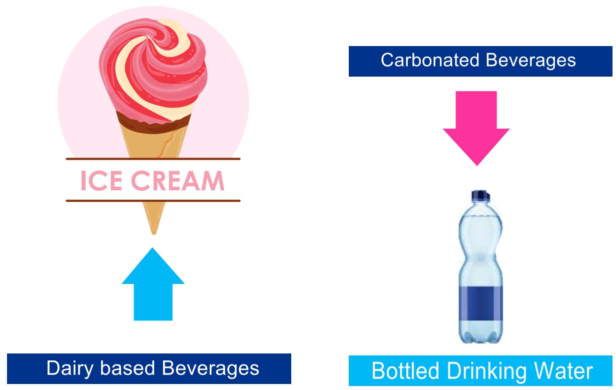


Figure 8: Vertical integration strategy by players of carbonated and dairy based beverages

On the other hand, carbonated beverage brands tend to play a backward vertical integration and possess a drinkable water product line. Companies like Coca-Cola, PepsiCo, Meghna Group of Industries (MGI) and Partex Beverages all have their own segment of drinkable water brands – Kinley, Aquafina, Fresh, and MUM.

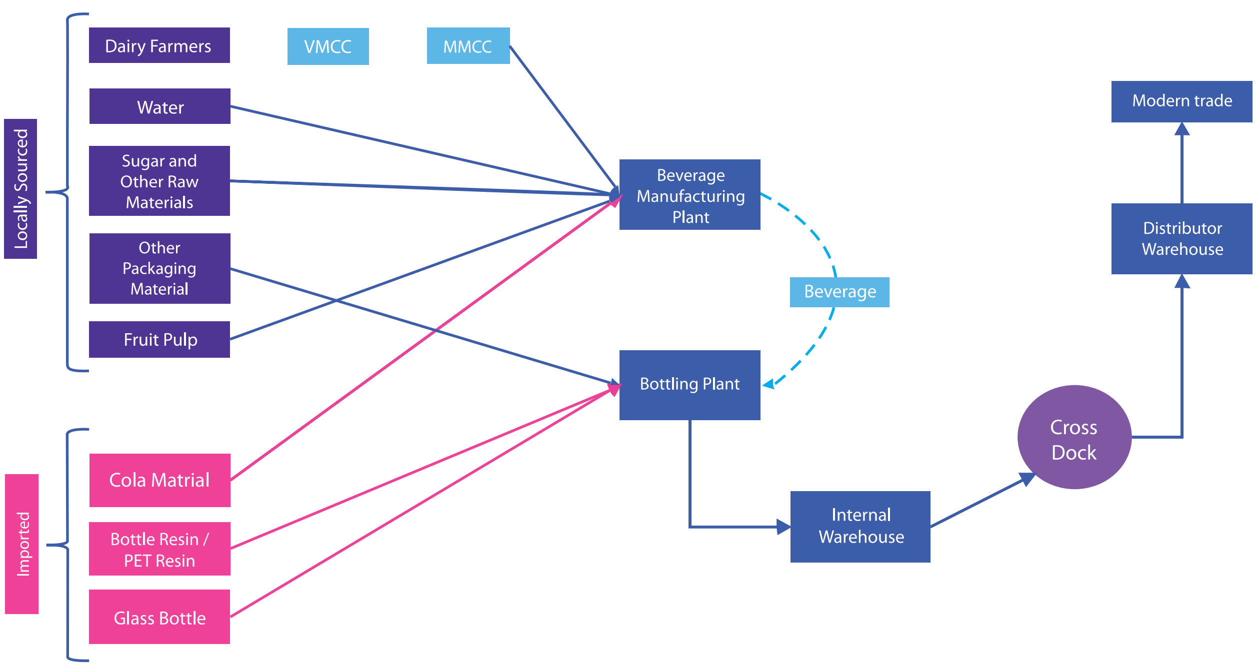


Figure 9: Supply Chain diagram for beverage companies in Bangladesh
Note: VMCC = Village Milk Collection Centre, MMCC = Mother Milk Collection Centre

Mostly the beverage companies conduct under a common supply chain mechanism. Due to the difference in raw material sourcing, the chain sometimes varies for certain checkpoints. Bottling materials, such as resins are mostly imported from China and India. Glass bottles used by Coca-Cola and PepsiCo is imported and usually comes through road freight. Coca-Cola however utilized a successful rail freight option for importing sensitive glass bottles recently.

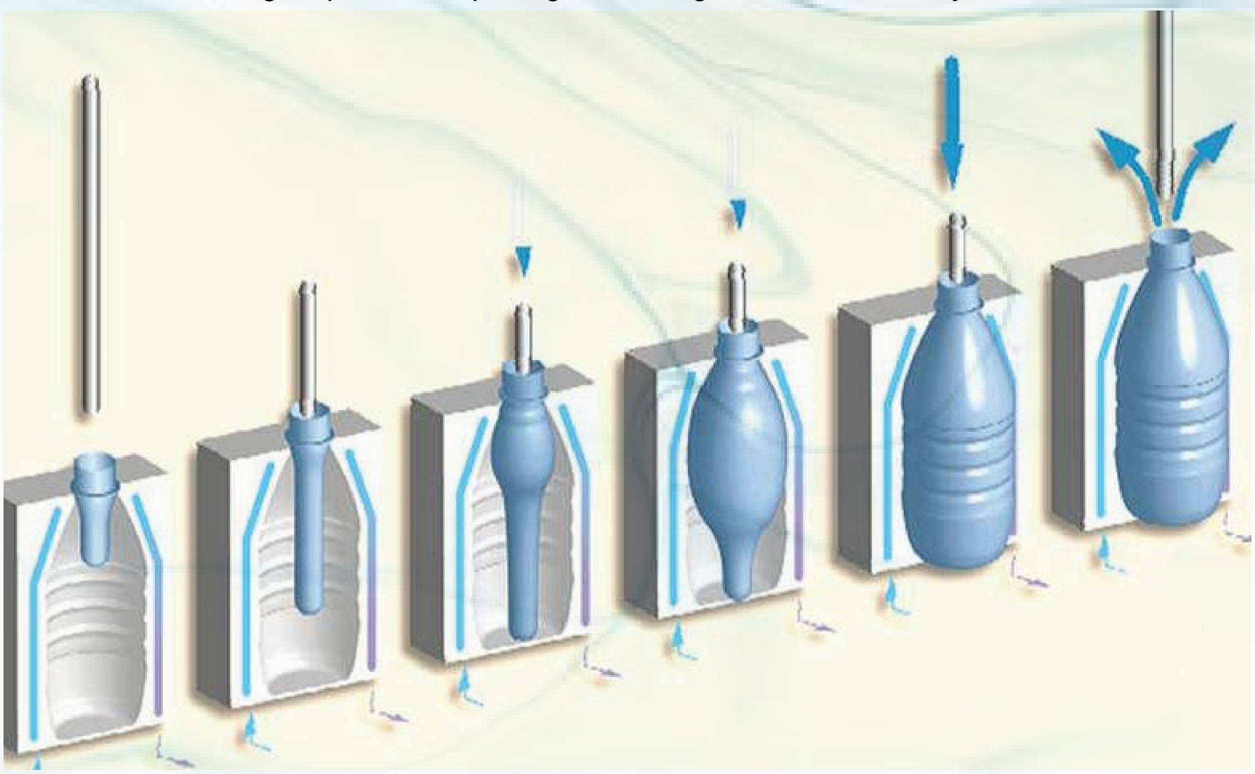


Figure 10: Blow molding process of PET bottles[14]

The technological advancement is seen in the beverage industry as well for maintaining a much sustainable supply chain approach. In recent years, one of the major and successful technological application took place in bottling. Coca-Cola successfully produced world's lightest bottle of 250 mL for their brands Coke, Fanta and Sprite while 500 mL for Kinley. The bottle is a disruptive innovation in the industry practicing a green approach as it contains 25-40% less plastic than any other bottles, with an additional feature of 100% recyclability. Some other advancements have been seen as digitization have helped maintaining a proper ordering cycle with efficient warehouse management systems. Faster internet and advanced technology have helped to achieve such milestone. Robotics have also played a vital role in the production process. Dependability on automation and robotics have saved time and reduced errors and accidents. For a sustainable future, some brands are also practicing Managed Aquifer Recharge (MAR) Strategy to reduce the extraction of natural resources like water.

In the beverage industry, some raw materials are highly perishable and often requires temperature-controlled logistics. One of the key materials of dairy based beverages is Milk, that often requires cold-chain management. Dairy companies like Milk Vita, Akij, Pran maintains a high-quality cold chain logistics process to ensure the best quality of milk by storing and transporting it on a constant temperature range of 0-4 degree Celsius. Such technological advancements have ensured increased shelf life of beverage products and improved quality with an efficient production process.

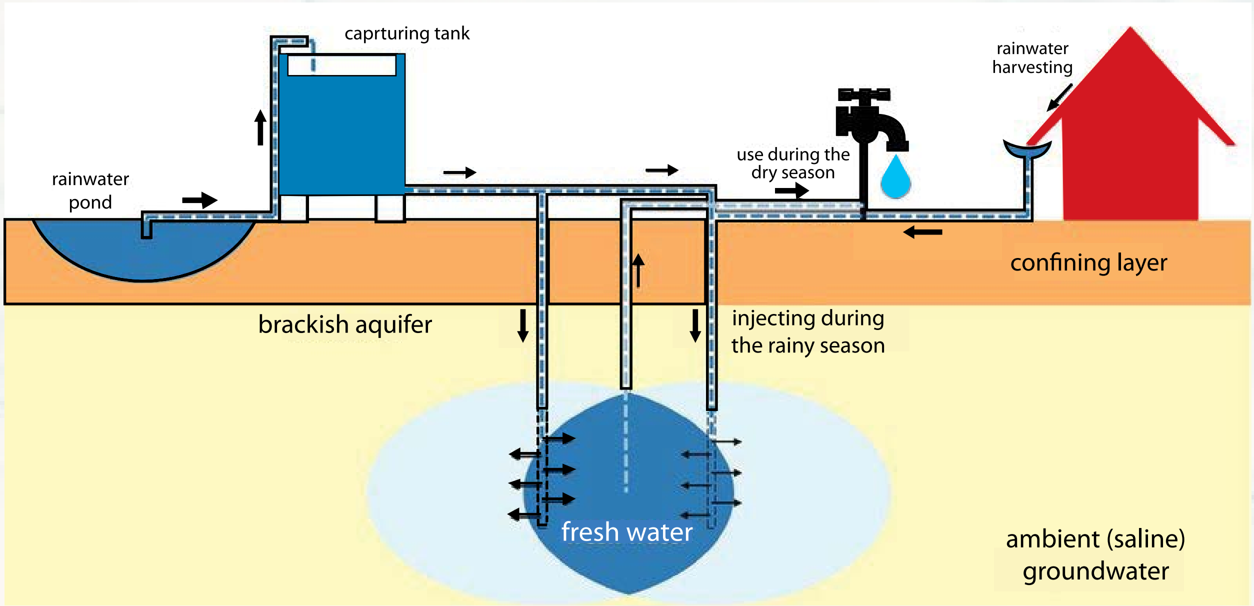


Figure 11: MAR Strategy: Rainwater Harvesting

CONCLUSION AND RECOMMENDATIONS

Bangladesh's beverage industry is growing at a pace with the rising economy of the country. As behavioral and cultural shift continuously takes place, the industry showcases a growth potential despite having obstacles. The industry lacks focus of policymakers, although it has a strong ability to contribute to the overall economic development. As experts claim, the industry requires the following recommended steps to be taken to mitigate the limitations:

-Increased research and development on sustainable and eco-friendly packaging to reduce plastic waste

-Develop advanced level bottling plants domestically, especially glass bottle manufacturing, to reduce plastic packaging methods and attaining cost effectiveness

-Improve road conditions to ensure better lead time management for the overall business environment

-Reduce supplementary duty on beverages to 12-15%

On majority times throughout the year, Bangladesh is a country with a comparatively warm weather that influences consumption of chilled or frozen items like beverages or ice cream. As population increases with a positive correlation with purchasing power, consumption of beverage items is more likely to increase. Also, due to an agrarian economic base, Bangladesh is rich in fruits and dairy production alongside agricultural products. As for the argument, it can be safely stated that the industry has a potential growth. Providing more flexibility to the beverage industry can bring blessings to the industry that can ensure a sustainable future for the overall business environment.

Mohammad Ashraful Islam khan
Head of Supply Chain Advisory Services,
Management Consulting, KPMG Bangladesh

Ahnaf Chowdhury Niloy
Management Trainee, Management Consulting
KPMG Bangladesh

INTERVIEW

"Global Companies Have Empowered Their End Markets and Implemented Localized Decision-making Initiatives For Need-based and Faster Complex Business Decisions."

Mohammad Al Kashem

Mr. Mohammad Al Kashem is the Managing Director of Coats Bangladesh and J&P Coats Pakistan Ltd. He is one of Bangladesh's best supply chain talents, who has thrived in every company he has worked for. In his glorious professional journey, he has worked in diverse roles at Unilever, Abul Khair Steel, Coats Bangladesh, and J&P Coats Pakistan Ltd.

TSCS: What does it take to become an MD of a renowned multinational organization like Coats Bangladesh Ltd ? We would love to know a few traits you have followed.

AK: My professional journey, till now, has been a very exciting one and I had to go through the learning curve. Looking back there are many traits that I can mention. But the most important trait that has helped me is the growth mindset – the belief that intelligence and talents can be developed over time. Ever since I started my professional life, I've always been enthusiastic to take up new challenges, seeking out solutions and drive for results for my organizations. I am a lifelong learner and continuously try to develop myself with the new aspects of the business irrespective of any functional boundaries. I also love to work with diverse team irrespective of any hierarchy and that helps me to get the pulse of a function or organization. I believe in adequate preparations always for any tasks. The will to prepare to win is more important that the will to win itself.

TSCS: From your career journey, which role do you consider is/ was the challenging one? How did you deal with it?

AK: I think each role has its own unique challenges and each of them contribute to shape you up for the greater purpose. The three organizations I worked for so far , I can mention three specific roles that have been very challenging and at the same time rewarding also. The first challenging role would be, at Unilever Bangladesh Ltd working as a Factory HR Manager during 2008-09. Being the youngest Factory HR manager and coming from purely an engineering background , this role has stretched me to unleash my potential as a people manager. I had to lead multiple change management initiatives within a short tenure and all these helped me to understand the Industrial relations and employee mindset shift activities in deeper sense. Handling and resolving few crisis with the CBA was really a testing battle for me.

The second role would be at Abul Khair Steel, where I was heading a diverse production team. There I developed an effective production incentive scheme, which resulted in enhancing the production within a very short time and set a new benchmark for the industry productivity increase. I am proud that people do remember me for this from AKS team.

The third role is the one which I'm currently working as the Managing Director in Coats Bangladesh Limited. Now I'm responsible for leading the entire business and deliver the desired P&L. I understand this is a complete different ball game when you sit at the top and maneuver the oar to drive the business in a profitable and sustainable way.

TSCS: Do you think our local industries have accepted the change management concept? Please share your view on this from working in the local industries.

AK: I think the change management concept in our local industries are gradually getting tractions and they are slowly adopting the process. The more our local business groups are expanding and becoming competitive, the more they understand the need for it for their existence. The main challenge of the local industries is that most of the owners expect immediate result and at times do not want to invest adequately for the changes. But with any change management initiative, it requires some time to get the results. In my opinion, the local owners need to show more patience and support with the change management initiatives to get the desired results for the organization.

TSCS: How important is the company culture to you and what measures do you take to maintain your desired culture?

AK: Culture is one of the very core elements of an organization. It has a lot to do with the employee's professional and mental well-being and performance. I think a single individual doesn't create a culture but can be a driving force to shape the culture. It is created by its people, company objectives, policies, values etc. Personally, I always try to get mingled with the culture of each company where I worked and get connected with everyone across the hierarchy. At the same time, each individual has his/her own personality. I also have my own ethics and personality, which I maintain and if it matches with the organizational values than that's the sweet spot to remain.

TSCS: What was your learning during the COVID period? How do you modify your decision-making criteria based on this experience?

AK: The COVID-19 situation is a once-in-a-lifetime experience. Almost all industries have greatly struggled in terms of business continuity and profitability. It helped us to believe in few things – digitization is a must tool , supply chain resiliency is a key to navigate the storm and employee well-being and new ways of hybrid working is the future to stay. I think now we have become more resilient and empathetic also. Global companies have empowered their end markets and implemented localized decision-making initiatives for need-based and faster complex business decisions.

TSCS: You had an international assignment as a General Manager at J&P Coats Pakistan. We would like to know your experience working there. Also how do you perceive the global acceptance of Bangladeshi professionals on strategic levels?

AK: My international assignment as a General Manager at J&P Coats Pakistan was a very exciting one. It was a unique opportunity for me to learn how to run a business in a country where the organization is operating for more than 70 years. I spent seven months there and drove a handful operational and strategical projects. All these helped to improve the profitability of the business with a clear strategy for next few years.

As far as the global acceptance of Bangladeshi professionals on strategic levels, from my experience, it absolutely boils down to individual performance and past records within the organization. It's never about which nationality or ethnic group the concerned professional belongs to. In any global organization, professionals treat you individually and are only concerned about the values, experience, and difference that you can make for them and the organization.

TSCS: Knowing what you know now, is there anything you would have done differently when you were first starting out?

AK: As of today, I feel very happy to have a very fulfilling professional journey from the day I started out. But the international assignment as a General Manager at J&P Coats Pakistan was a very interesting and enriching experience. It would have been nice if I had got few more international assignments in my earlier phase of the career. But I absolutely have no regrets. Rather I feel very happy that I tried to make a difference in every single role which I worked.

TSCS: What are the challenges you see in the textile/RMG industry at present time?

AK: In Bangladesh, the textile industry is one of the most important industries. The country's economy is still significantly dependent on its contribution since RMG export contributes the lion share of our export proceeds. There are many challenges in this industry such as lack of product diversification, not having adequate integrated backward linkages, lack of R&D initiatives, skill and capability gap of mid and senior management, lack of automation, ongoing energy crisis, not maximizing the non-traditional export markets, concerns about the status of preferential trade facilities, etc.

TSCS: What is the state of the practice of compliance & ethics in Bangladesh's textile industry? Do you think we need to improve this? If yes, then what should be the approach?

AK: I think after the Rana Plaza incident in 2013, both the buyers and RMG companies had become really serious about the practice of Health and safety, compliance & ethics in Bangladesh's textile industry. And after that there has been no looking back. BGMEA, Govt of Bangladesh and our progressive entrepreneurs have played a great role here. In the process, though the no. of factories have been reduced as they struggled to meet the buyers' strict compliance but the companies which ensured compliance & ethics at their business are improving day by day. Companies need to shift the mindset about compliance & ethics as a must-do principle to do business in the long run.

TSCS: What is the impact on the RMG sector due to USD rate fluctuations & how our RMG sector is dealing with this tough situation?

AK: The USD rate fluctuations have overall impact on RMG, specially in terms of cost. With the payments made by the RMG makers being in dollars, the weakening of BDT means the cost of purchasing raw materials and other USD-denominated resources is increasing. The dollar crisis is also impacting the RMG makers via inflation. So, the overall growing volatility and uncertainty are becoming more significant.

TSCS: Please share with us some key points to develop a trust-based relationship with the internal and external stakeholders.

AK: Trust is something that one can build over time. In the business world, trust-based relationships are built by continuously meeting and delivering up to the commitments. When you work, always try to keep the internal and external stakeholders in alignment. Always convince them why and how you are doing it. If there's any issue that seems problematic, you must let the concerned stakeholders know so that it doesn't come to them as a surprise. Don't just point out the problems, come up with the solutions to the problems as well.

TSCS: What are the skills the Operations manager/plant managers should concentrate on to master?

AK: Operations managers/plant managers have very challenging roles. They need to be result-oriented, process driven, efficiency focused , agile, proactive and persistent while having people leadership skills and a continuous learning mindset.

TSCS: Can you describe an experience in which you had to manage a crisis that was directly or indirectly related to the Supply chain?

AK: As a professional having an operations background, managing crises related to the supply chain is our regular job. But if I had to mention just one instant, once again I will mention the Unilever incident while we were driving a change for factory operation modality. We predicted that some disruptions may happen. So, we did the proper planning and production accordingly and we slowly built the stock beforehand so that our supply doesn't get interrupted. In the end, the employee strike impact was mitigated by smart supply chain crisis management.

TSCS: Please tell us the 3 (three) most important attributes, a supply chain professional should develop.

AK: In my opinion, the most important attributes will be lifelong learning, systems-driven, analytical, and adept at interpreting data and taking prompt actions.

TSCS: Do you think young graduates should consider supply chain management as his/ her top choice in career development? What tips you would like to give them?

AK: Nowadays, supply chain management has definitely a good career prospect. Most companies have realized it and they are gradually building their strong supply chain foundations. Our young graduates are very talented. Surely, they can play a vital role there. But the tip I'd like to give them is to be themselves and chase the dreams that they are passionate about. It can be in anything such as production, supply chain, marketing, finance, engineering, or research field. Just follow your dream and work hard & smart towards it. You will definitely find success someday.

TSCS: What is the importance of continuous learning and networking in professional life? What role a supply chain specialized business magazine "The Supply Chain Street" can play? Also, share with us your thoughts and expectations from "The Supply Chain Street".

AK: In today's professional world, continuous learning and networking are must-have skills. Self-growth and contribution to the industry are impossible without these skills.

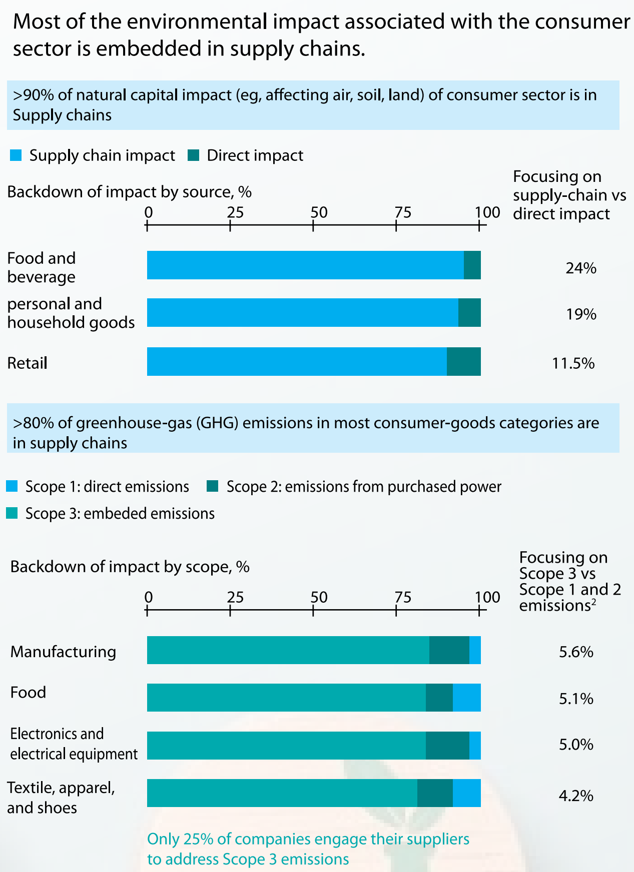
Magazines like "The Supply Chain Street" are a great source of learning new things to keep ourselves updated with the ever-changing world. The networking events of "The Supply Chain Street" also give the professionals a wonderful opportunity to meet and discuss various ideas and make an industry of collaboration and unity. I hope "The Supply Chain Street (TSCS)" will continue and expand its various innovative activities to make our industry a better and more fun place to be in. I wish "The Supply Chain Street (TSCS)" all the very best.

Supply Chain  Sustainability

The global business context of today is very competitive and customers, employees, investors & governments have put increasing pressure on companies to demonstrate greater environmental stewardship and social responsibility. This comes at a time when the business case for sustainable operations grows stronger every year.

Supply chain sustainability refers to companies' efforts to consider the environmental and human impact of their product's journey through the supply chain, from raw materials sourcing to production, storage, delivery and every transportation link in between. The goal is to minimize environmental harm from factors like energy usage, water consumption and waste production while having a positive impact on the people and communities in and around their operations. These concerns are in addition to traditional corporate supply chain concerns around revenue and profit. While conventional supply chain management focuses on the speed, cost and reliability of operations, sustainable supply chain management adds the goals of upholding environmental and societal values. This means addressing global issues such as climate change, water security, deforestation, human rights, fair labor practices and corruption.

According to research, supply chain accounts for more than 90% of most consumer goods companies' environmental impact.



Note: Supply Chains are defined here as all organizzations, including energy providen, involved in producting and distributing consumer goods.

Supply-chain impact multiples are lower for GHG emissions than for natural capital because GHG Multiples consider Scope 1 and Scope 2 emissions jointly.
Among companies that disclose to CDP.

Thus, supply chain sustainability has emerged as a key corporate goal. Companies have started to measure the environmental and societal impact of their goods and services, from the beginning to the end of their life cycles. Research has shown that, for most companies, the supply chain is responsible for the bulk of their environmental impact. By their very nature, supply chains often involve energy-intensive production and transportation as goods are made and moved around the globe. Therefore, organizations can often make the biggest difference by making changes to their supply chain rather than other business operations.

Companies around the world have taken steps to lower their carbon emissions, cut back on waste and improve labor conditions. By tracking sustainability metrics in supply chain management (SCM) systems, they monitor multifaceted programs that, for example, prioritize renewable energy, recycle products and materials or encourage greater social responsibility among suppliers. Additionally, companies can use intelligence and pre-defined rules to ensure that products aren't being shipped unnecessarily—for example, making sure products are sent from the closest distribution center as opposed to one on the other side of the country.

Nearly half of U.S. consumers say they would change purchasing habits to reduce their impact on the environment. A second type of risk occurs because sustainability impact can interfere with consumer companies' supply chains. In 2014, a ranking of the world's 100 most reputable companies included 8 apparel companies. Of those, 2 were dropped from the ranking in 2015, following the deadly collapse of the Rana Plaza factory in Bangladesh, which had been making goods for them, and they were left off the list in 2016. Sustainability is no longer a choice, it's a must to survive in today's competitive business context where consumers are very concerned about the impact on the people & planet by the products they are purchasing/ consuming.

In the eyes of shoppers/ users who are concerned about the sustainability of the goods they buy/ use, organizations are responsible for ensuring that their supply chains are managed well in a sustainable way. But there are huge challenges and trade-offs to make to improve the sustainability of an organization's supply chain. There are different approaches organizations are taking to move forward strongly toward sustainability. These include connecting sustainability with the purpose/ mission of the company, identifying critical issues across the whole supply chain, linking the company's supply-chain sustainability goals to the global sustainability agenda and helping suppliers of all tiers to manage their impact.

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action for all countries, designed to promote prosperity while simultaneously protecting the planet. They recognise that ending poverty goes hand in hand with strategies that develop economic growth and respond to a series of social needs, including education, health, social protection and employment opportunities, while still protecting the environment and fighting climate change.

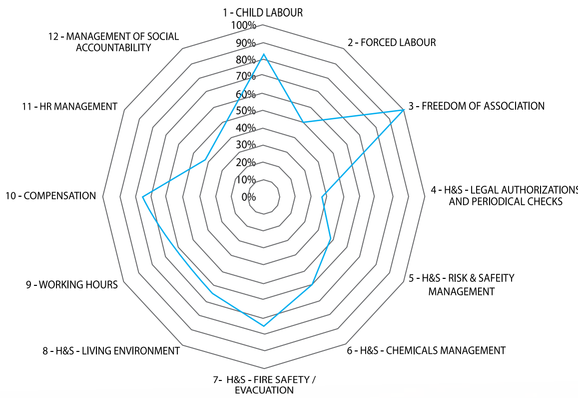
The above 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others and that development must balance social, economic and environmental sustainability. The countries & companies are committed to progress in these directions to offer a better place to live for future generations.

Sustainable product design:
The design decision of a product defines highly the environmental performance of the supply chain of that product. Designing a product for a longer lifetime will be very effective to reduce

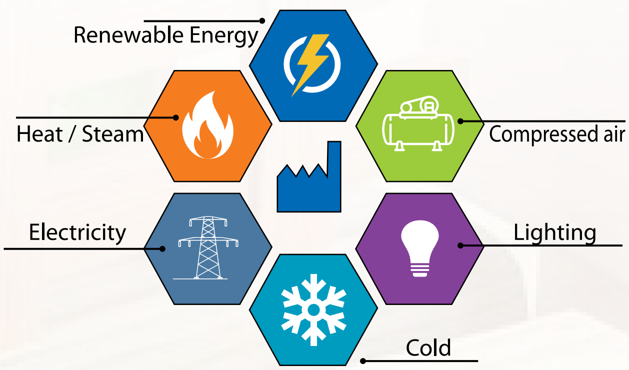
the consumption of the products as a whole.
Using recycled components/materials is a priority for most of the world's giant companies. Decathlon; the world's leading sports goods retailer is committed to eco-design 100% of products by 2026. The company is also replacing some basic ranges of products with 2nd hand-middle ranges to promote sustainability. There are few retailers who build dedicated stores to collect their used products from consumers. The circular economy is progressing very fast and consumers are also very aware of the impact of their purchasing decisions on people & planet.

Sustainable human practices in manufacturing: The supply chain operations require the involvement of people in the manufacturing facilities to produce the goods. It's the fundamental obligation of a sustainable supply chain to guarantee a safe & healthy place for the people who are working in the production factories. Companies in all industries are using suppliers to have finished goods/ components/ raw materials. It's even more challenging for organizations to manage suppliers of human safety as there are different tiers of suppliers. But organizations are putting human responsible manufacturing as a key indicator for their supplier management. Organizations developed some grids to evaluate the situation of their suppliers on sustainable human practices in manufacturing. And it's a criterion of order qualifiers to achieve a certain minimum level during these evaluation processes to be listed in their pool of suppliers.
There are different perspectives/ points to consider during this evaluation process and different organizations have developed different matrices/ grids to manage their suppliers in this area. But the intention of this evaluation for all the organizations is quite similar; to ensure safe & healthy life for the people working to produce their goods at any stage of manufacturing. Below is an example of the many points that can be taken into consideration for sustainable human practices in production. The manufacturers of Bangladesh had good progress so far in sustainable human practices in manufacturing. But still, there is huge scope to improve in this area to offer the desired working environment for the people working in manufacturing facilities.

Sustainable environmental practices in manufacturing: The manufacturing processes are creating lots of negative impacts on the environment. But we must keep a liveable place for future generations. Environmental impact is a key factor for every supply chain decision nowadays. eTCO is used today instead of TCO to incorporate environmental effects into supply chain decisions. Supply chain design has been



influenced greatly by the environmental factors of the supply chain. Manufacturing facilities closer to the retail zones; producing components/ raw materials closer to the finished goods production facilities is a drive to reduce the movement of goods and thus environmental impact. Many retailers around the globe are now drastically reducing air shipment and using more environment friendly modes of transportation.



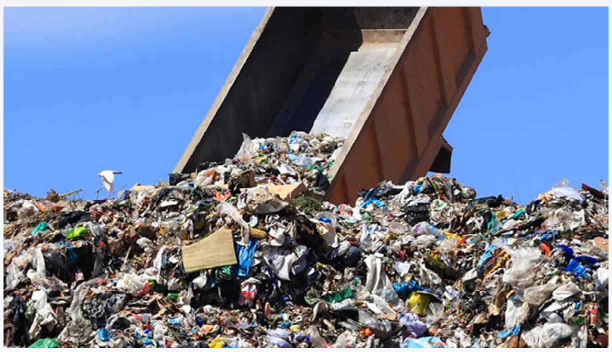
Organizations need environmental commitment from the top management to facilitate environmental progress. A formal environmental strategy with SMART KPIs, regular measurement and continuous improvement in environmental performance is very much needed. The organization needs to assign a team to manage the environmental strategy and this team should be equipped with the right competency, authority & resources. There should be periodic reviews of the environmental strategy including top management to see together the present state of the situation in comparison with the objective and then to set appropriate action plans to be on track for desired environmental performance.

Waste water and raw water are another very important scope of environmental management in the supply chain. In any situation, industrial wastewater shouldn't be released into the environment. Depending on the operations, wastewater treatment plants must be operational with sufficient capacity to treat the maximum volume of released industrial wastewater per week. The organizations must strive to find some ways where treated water can be reused up to a certain percentage for the operations. Monitoring the consumption of water is also vital. Then the organizations should take action to reduce the use of water. There are different advanced machinery/ processes available nowadays to optimize the water consumption in the operations.

Hazardous waste & chemicals are other huge sources of environmental harm. The operations in the supply chain usually use chemicals and yield various hazardous wastes. Organizations can't eliminate waste but the key is to put in place the right management of hazardous waste and chemicals. It's important to measure the amount of waste produced by different stages of the supply chain and define a concrete goal to reduce it continuously. Recycling can be a good step toward sustainability. Promoting the use of recyclable components/ materials will reduce the environmental impact of the supply chain hugely. Management of chemicals in

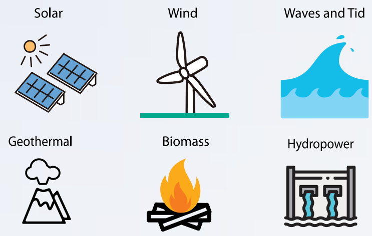
storage, handling, and process affects the environmental performance of the supply chain as well.

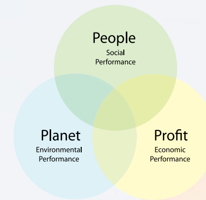
Another source of environmental impact by the supply chain is air pollution. If the manufacturing site uses coal and/ or biomass to produce energy with a burning power plant and/ or boiler, it must be replaced as soon as possible. If it's not been replaced, then the site should use functional filters and/ or systems to reduce air pollution from coal and/ or biomass burning. Uses of advanced technology/ process/ equipment will help a lot to optimize the air pollution by the operations. Measurement of the air emission and concrete reduction target along with the action plan is needed very much. Energy management is a vital part of



environmental management in the supply chain. Greenhouse gas emissions need to be monitored and reduced continuously. Energy optimization is a big scope to contribute positively with very little investment. After only the energy consumption is highly optimized, the supply chain should focus on the replacement of energy sources with sustainable ones. The use of energy-efficient equipment and design of the facility with a provision to utilize the daylights can be very effective economically as well as environmentally. Investing in solar energy, especially solar panels in rooftop areas are very good step and it's progressing in a good way in Bangladesh's manufacturing & service industry supply chain. The Paris Agreement aims to limit global warming to well below 2, preferably to 1.5 degrees celsius, compared to pre-industrial levels; driving the signed companies to act strongly to reach their sustainability commitment.

Sustainable Supply Chains should use the triple bottom line concept to redesign their business model to reflect economic, environmental, and social value. Sustainability involves activities that provide present benefits without compromising the needs of future generations.





The triple bottom line links a company's ability to keep operating (economic sustainability) with the two other key measures, environmental and social contributions. Today's customers and societies are demanding that organizations make a positive impact on the environment and society. Organizations that listen to these demands and make the required investment should see more market growth than those that ignore such demands. Making all three of these components into bottom lines or top-level organizational success indicators usually requires a company to modify or change its business model. It cannot be an afterthought. Integrating triple bottom line thinking into the various aspects of the business involves creating a business plan that reflects the organization's commitment to conservation and stewardship. Such a plan spells out the company's mission, marketing, operations, pricing and growth strategies and explains how it will integrate environmental and social elements into this business strategy. If the business plan determines ways to satisfy all three of these bottom lines at once, this is what is called the sustainability sweet spot. These strategies should cascade into the planning, goal setting and processes of key functions within the company. Once this occurs, the supply chain will be truly sustainable.

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Process Manager
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Direct Dispatch Supply Chain Model: Shaping the Current E-COMMERCE INDUSTRIES

Recent Covid-19 pandemic hit the supply chain structure of the local e-commerce giants with the hardest. Solely E-commerce based companies along with the companies having online selling system. The major concern what most of the e-commerce platforms are burdened with is delivering products on time cutting the cost furthest.

But, maintaining a supply chain that much responsive- right product on right time- is a daunting task undoubtedly. For maintain high responsive line to a customer, it is necessary to have a dedicated fleet of transports who are ready to serve any condition and variable quantity. When the demand is stable, keeping this type of dedicated transport system might provide a competitive edge considering FTL (Full truck load) delivery. FTL have some advantages like for shipments that are large enough to fill or nearly fill an entire shipping container, full truckloads work out cheaper. Moreover, Full truckloads are much less encumbered by size and weight restrictions.

Full-truckload (FTL)

Full-truckload (FTL) is for shipments with enough volume to require a full truck of dedicated space

VS

Less-than-truckload (LTL)

Less-than-truckload (LTL) is for smaller shipments which do not require a whole truck space

But things will start going south, when the demand is uncertain, shattered into pieces among the retailers and is needed in no time. Then the company must go Partial Truck Load or Less than Truck Load (LTL). This desperate move might ensure responsive supply chain yet incur much more cost. Obviously, companies can cutoff some cost sacrificing responsiveness at certain levels. But, in this market of cutthroat competition, once the product is out of stock having similar quality products from competitors, it will succumb to dwindling sales volume over time. It is tough to regain the position on the front shelves of the shops once the iron fist of placement is gone to the other brands. In this era of consumerism, people are sensitive to the price more than anything else, which would, in turn, make them less loyal to any specific brand. Due to this very reason, every company must be vigilant as businesses are looking for more and more efficient ways to move goods from factories to warehouses and then onto vehicles and trucks that will take them to their final destinations. This is changing and growing supply chains all over the world. Along the way, complicated processes are used to make sure that the right products get to the right place at the right time, and they often go through several intermediaries. The complicated nature of supply chains affects both profit margins and the ability of a company to build long-term customer loyalty. However, traditional design of supply chain system often fails to meet these criteria.

To resolve this above-mentioned issue, companies are often looking for strategies to streamline their supply chain operations. To exert greater control over client satisfaction, global corporations are experimenting with sending orders directly to customers. In the current digital era, this involves eliminating “middlemen” by employing a direct dispatch supply chain strategy.

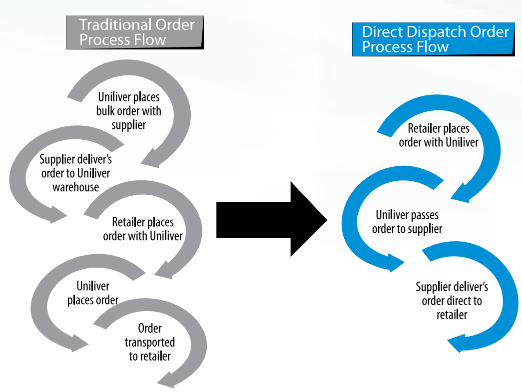
To stay on top, more manufacturers in a wide range of consumer product categories—from skin care, food product producers to readymade garments producers— all are embracing direct dispatch or in other name direct to consumer (DTC) supply chain mode, generally through e-commerce. Instead, then selling things primarily through third parties, they are also promoting, selling, and delivering goods directly to consumers, cutting out the middlemen - the traditional wholesale and retail channels.

What is Direct Dispatch Supply Chain?

Once upon a time, multinational brands relied on distribution partners to sell their products. However, circumstances have changed, and businesses are increasingly migrating to a direct dispatch supply chain to obtain more control over their distribution. Because of the growing popularity of e-commerce, businesses can now set up online stores and deliver goods straight to customers. In some cases, there are modifications. For instance, company may store packaging materials to some extent to the producer and send products to the outlets from that producer directly with packaging. Unilever, Daraz and other companies are currently practicing this model efficiently at varying degrees.

A direct-to-consumer distribution channel, or DTC, is a delivery strategy in which manufacturers distribute their products to customers directly. The DTC delivery architecture decreases manufacturers’ storage and transportation expenses while adding complexity to the overall supply chain operation.

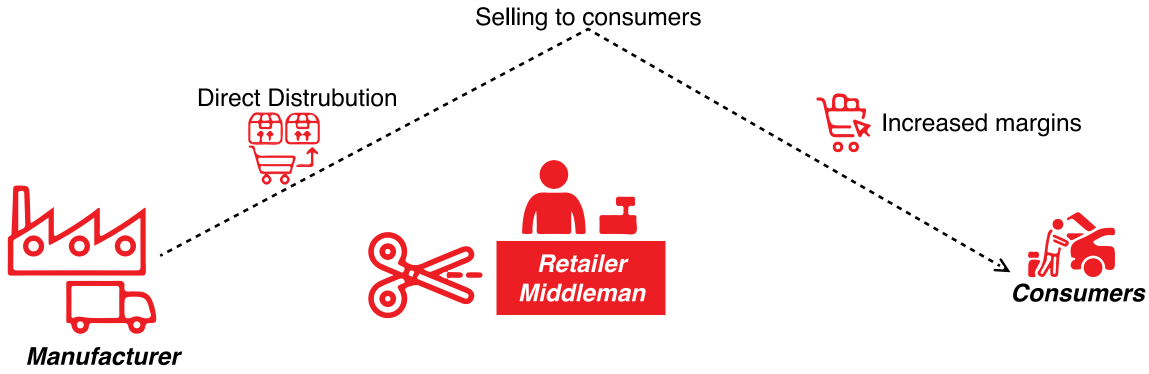
Direct Dispatch Methodology



Given how hard and expensive it is to get listed with a retailer at a time when many of them are cutting back on the number of items they carry, this model makes a lot of sense for a new company, but it is less clear how it works for large, well-known companies. Even though direct selling has the potential to be profitable, it has a lot of problems, especially when it comes to getting the products to the customers.

Direct-to-consumer Business Model

Direct-to-consumer (D2C) is a business model where companies sell their products directly to the consumer without the assistance of a third-party wholesaler or retailer. In this way, the company can cut through intermediaries and increase its margins. However, to be successful the direct-to-consumers company needs to build its own distribution, which in the short term can be more expensive. Yet in the long-term creates a competitive advantage.



So, with all these problems, why are so many big companies starting direct-to-consumer platforms? And what are the biggest supply chain problems that need to be fixed for these businesses to make money?

Why are Companies choosing Direct Dispatch? If a business wants to learn more about direct distribution, it would be smart to look at how some bigger brands use DTC.

For example, in 2018, Nike announced its Consumer Direct Offense, which gave the company a way to tell a lot of customers about new products through an online portal they controlled. The company that makes shoes and athletic wear used to sell its products through retail chains, but two years ago, it switched to direct distribution. Nike expects that direct-to-consumer sales will make up 80% of its revenue growth from 2020 onward. (Source: Forbes, December 1, 2018)

Direct distribution is something that other global brands have already tried. For example, the cosmetics company L'Oréal, which used to only sell through stores, saw a 33% rise in online sales in 2016. By 2018, 17.6% of the company's total business came from online sales. In Bangladesh, Unilever and Daraz are currently practicing this model efficiently at varying degrees. Unilever is supplying lots to the retailers whereas Daraz is delivering products to the end customers using this mode of distribution system. They have introduced convenient pickup points in their warehouses throughout Dhaka city to enable DTC delivery from the seller to the customer.

There are both pros and cons to indirect channels of distribution. But for many businesses, the downsides of indirect distribution cut into their profits so much that they have to switch to direct-to-consumer (DTC) sales.

Indirect distribution requires the use of middlemen, which makes it hard for brands to get closer to their customers and build more personal relationships with them. On the other hand, direct distribution lets companies talk to customers directly and learn valuable information about them and how they act, all in the name of better service. This doesn't mean, though, that brands won't use retailers in the future at all. But brands are taking advantage of the chance to see and control their relationships with customers in a way that has never been done before. They want to learn more about their customers so they can get a bigger share of the market.

Changes in retail and improvements in delivery logistics software are giving companies chances to try out new ways to get their products to customers, learn more about their markets, and build stronger relationships with their customers. And in the coming years, consumers can expect more of their favorite brands to sell their products through direct e-commerce platforms.
So, to say, the advantages can be drawn into three distinct portions:

Control and brand clarity: Direct-to-consumer (DTC) marketing gives the manufacturer control over the whole branding experience, including the product, packaging, and messaging, without having to compete for shelf space.

Speed to market: Without third-party channel coordination, seasonal delays, or other retail interruptions, manufacturers can make changes to their products and get them to the market faster.

Direct business intelligence: DTC lets manufacturers talk directly with customers, they can find out a lot of useful information from customers about buying trends, regional preferences, and how to position their products.

Risk associated with direct dispatch supply chain:
The digital age is changing how people buy from brands and shaking up the manufacturing industry in ways that were not expected. A direct-to-consumer model could be a good business decision for your company, but with every big change comes new or more risks. To keep the business on the right path, the following factors should be thought of:

Using a cross-functional team to find potential problems and weak spots will help make sure people of the company have the skills and assets need to handle the operational risks of direct distribution.

Work with insurance partners to figure out what this means for the insurance, look at the risk controls the company already has in place, and change its coverage as needed.

Contracting with third-party logistics companies to manage inventory and distribution and to reduce the risks and problems that could arise with delivery.

Keeping traditional channels of distribution open while the company's direct-to-consumer (DTC) model gets off the ground.

There is nothing called absolute fit tailoring supply chain design for a certain company. It is all about "Depends on the Situation". However, direct dispatch process might help the practitioners a lot to model an efficient yet effective supply chain route by mixing traditional sense of distribution. Modern data science, big data, machine learning – all are enabling the management to act on this idea more efficiently. The bottom line is modern supply chain is evolving rapidly and so will be the DTC model. Adaptation and learning are the keys- the faster, the better!

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When & Why Reverse Marketing is Necessary in Supplier Development Program

The concept of reverse marketing is developed by Leenders and Blenkhorn (1988), was based on some earlier work by one of these authors (Leenders and Henderson 1980; 1981). Reverse marketing is based on the parameters that the purchasing agent takes a marketing perspective and convinces the supplier to provide a suitable solution to the buyer's problem. In other words, "give me what I want or suggest a better solution." Such a position suggests a win-win orientation in negotiation management, a proactive role on the part of the purchaser/ buyer, and a close working relationship with the supplier.

Someone would expect that taking such a perspective would improve the buyer seller relationship and, among other things, reduce the inherent conflict between the buyers and suppliers. Reverse marketing efforts undertaken by companies to achieve competitive advantage using, what is referred to as supply chain management (Davis 1993; Balseier and Voisin 1996) i.e., competitive advantage among companies through supply chain excellence.

The purpose of this article is to demonstrate the impact of taking a reverse marketing posture on the buyer's perceived conflict with the seller. The article begins with a brief literature review of reverse marketing and notes from various authors of their research work.

Literature Review:

Reverse marketing in traditional marketing concept:

Traditionally, reverse marketing is the concept of marketing in which the customer seeks the firm rather than marketers seeking the customer. Usually, this is done through traditional means of advertising, such as television advertisements, print magazine advertisements and online media. Traditional marketing mainly deals with the seller finding the right set of customers and targeting them, but reverse marketing focuses on the customer approaching potential sellers who may be able to offer the required product. Reverse Marketing in Supply Chain

Management concept:

Let us see how the scholars say about reverse marketing in purchasing/ buying field of supply chain management. Leenders and Blenkhorn (1988) define Reverse Marketing as "an aggressive and imaginative approach to achieving supply objectives. The purchaser makes the initiative in making the proposal."

Reverse marketing techniques are also used in supply chain management. The buyer will take the initiative to find the supplier. This technique is often used by large companies to decrease redundancies in their supply chain and reduce costs. The strategy, in some cases, has been very successful. In 2001 Richard Plank and Deborah Francis published an article on the impact reverse marketing has on the buyer-seller relationship.

In the year 1966, Leenders mentioned the need for active supplier development. Also, in 1980s use of single sourcing were recommended by many (e.g. Morgan 1987, Segal 1989), whereas others went on to point out the long term dangers of relying on just one supplier (Newman 1989, Ramsay 1990).

In supply chain management, the process by which purchasing actively identifies potential suppliers and presents suitable partners with a proposal for long-term collaboration is referred to as reverse marketing. Burt (1989a) called it proactive procurement, while Oumlil and Williams (1989) used the term market-driven procurement

Factors to cconsider today's purchasing and supply management to succeed in supplier development program through reverse marketing:

The main goal of the article is to acknowledge importance and role of the reverse marketing process: Following factors are seen important in today's Purchasing and Supply Management during SDP (Supplier Development Program).

1. Global trends

It is possible to identify global trends, which indicate that a variety of actions are taken to encourage the growth of the purchasing function. These include increased demands on suppliers and a decrease in the number of suppliers.

2. Reducing the number of suppliers

To improve product quality, many businesses drastically reduce the number of suppliers they use. A lower number of suppliers increases control, improves management, reduces costs of communication and clarifies responsibilities.

3. Increased demands placed on suppliers

When businesses face rising levels of competition and become dependent upon fewer suppliers, they will increase their demands. Parts-per-million (PPM) rejection levels are being developed, with some aiming for zero defects. In addition, businesses insist that their suppliers obtain certification. It is possible to remove suppliers from the approved vendor list if they do not comply.

4. Increasing cooperation with suppliers

Increased demands and a smaller number of suppliers have led to the replacement of traditional arm's-length relationships with close, long-term partnerships that are characterized by mutual trust, interdependence, and benefits (Magnet, 1994). Suppliers are frequently involved in the development of new products and receive functional specifications rather than in-depth product specifications from the customer (Burt 1989b, Nonaka 1990, Asmus and Griffin 1993). World-class suppliers are the best because they share similar management policies, structure, information systems, quality levels, delivery schedules, and costing practices as the company.

5. Time to market

The increasing trend of competition shortens product life cycles, puts pressure on activities related to product development, and necessitates shortening time to market. To gain a competitive advantage, time becomes a crucial factor (Stalk and Hout 1990, Kotler and Stonich 1991, Meyer 1993). Product development times have been halved, particularly by Japanese companies. An increasing number of western businesses are currently employing their methods (Smith and Reinertsen 1991). To achieve the desired reduction in development cycles, close collaboration is required both internally (with cross-functional teams that include purchasing) and externally (with key suppliers and major customers).

6. Purchasing as a strategic weapon

The strategic significance of purchasing is increasing because of collaborative relationships with a selection of few suppliers (Kraljic 1983, Reck and Long 1988, Burt 1989a, Cammish and Keough 1991, Keough 1993). In many businesses, Purchasing now employs professionals to negotiate crucial partnerships rather than just making money off from suppliers. In addition, personnel in the purchasing department regularly communicate with and collaborate well with other essential departments, such as production, research and development, human resources, and finance. They are an essential asset of the cross-functional teams necessary for successful product development due to their extensive network of relationships (Burt and Soukup 1985, Williams and Smith 1990).

The above-mentioned trends have a significant impact on the purchasing industry. Effective firms acknowledge significant advantages through an efficient organization of their purchasing function.

A study of McKinsey & Co. quantified some remarkable results (Table 1). Cammish and Keough (1991) report that the strategic management of purchasing may trim total spending between 5 and 15% over a three-year period.

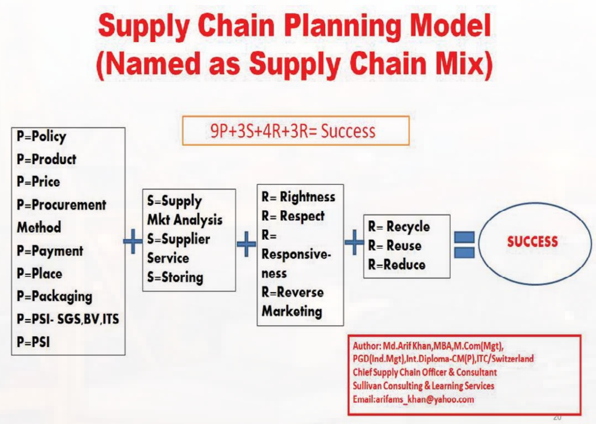
Factors/Variables	Typical company	World-class company
Cost factors		
Suppliers per purchasing agent	34	5
Agents per $100 million of purchases	5.4	2.2
Purchasing costs as a percentage of purchases made	3.3%	0.8%
Time factors		
• Supplier evaluations (weeks)	3	0.4
• Supplier lead times (weeks)	150	8
• Time spent placing an order (weeks)	6	0.001
Quality of deliveries		
• Late	33%	2%
• Rejected	1.5%	0.0001%
• Materials shortages (No. of instances per year)	400	4

Table 1. Results of efficient purchasing

Model review:

To succeed in reverse marketing, we need a reverse marketing plan while we draft supply chain management planning. During supply chain planning, we can follow the following supply chain planning model where there is a plan for reverse marketing program.

Also, we can use SPM Model (Supply Positioning Model)/ Kraljic's Matrix developed by Kraljic (1983) to take decision whether we



will go for reverse marketing program.

Let us see the SPM model below: where: There are four types of Items in four quadrants (Routine Items, Leverage Items, Bottleneck Items, and core/Strategic items)

➢ There are Two Axis

➢ Horizontal axis represents value/ expenditure of purchase of items

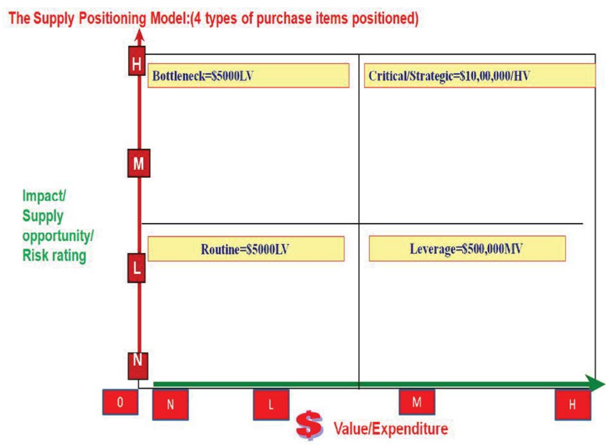
➢ Vertical axis represents Impact/ Opportunity/ risk of purchase of items

➢ For routine and leverage items, suppliers are available

➢ For bottleneck and critical/ strategic items, suppliers are not available

➢ Here, hypothetical Item value positioned in different 4 quadrants as USD5,000 = LV (Low value) as routine items, USD500,000 = MV (Medium value) as leverage items, USD5,000 =LV (Low value) as bottleneck items, USD10,00,000 = HV (High value) as critical/ strategic items.

In purchasing/ buying we can use Kraljic's model. While we have high value Item purchase, risk is high. Because suppliers are not available, it means there are few suppliers.



In this case we need to motivate suppliers. That is why, need to collaborate with suppliers and to develop reverse marketing program. Reverse marketing is also SDP (Supplier Development Program).

While purchasing low value items, we do not need a supplier development program.

We can conclude from model when we would develop reverse marketing program.

➢ When we have high value Item purchase
➢ When supply risk/ impact/ opportunity is high
➢ When there are only few suppliers
➢ When continuous purchase (regular supply) is required
➢ When long term partnership is required

What is the development program proactively buyer/ purchaser we can take during reverse marketing:

➢ Buyer will take initiative to develop the relationship
➢ Buyer will pursue to convince the supplier
➢ Buyer will suggest attractive prices, terms & conditions
➢ Buyer will be involved in product development with the supplier
➢ Buyer will be involved in packaging development
➢ Buyer may help in policy formulation, Training and Development
➢ The buyer will improve the supplier's capabilities to supply the required goods by providing IT (software) assistance, Infrastructure (factory setup), Financial (capital) assistance etc.
➢ Calling quarterly, half yearly or yearly supplier conference to exchange views physically

The above program is taken only in the case of the high-value item purchase, where long-term supply is required. For low-value items purchased, especially for everyday items, the above programs are not suitable. It is cost-making.

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New Opportunities in Supply Chain: How Technology Turns Into a Problem Solver

Whenever the phrase supply chain comes to our mind, we always think about a product being manufactured and delivered to the customer's doorstep. Throughout this manufacturing and delivery process, starting from raw materials sourcing to distribution the product must go through all the essential process functions. Other than the product, if we think about the service then we might have heard about the repair, maintenance, and spare parts servicing of the industrial equipment or machinery in the supply chain. But what about the pure services like health, consultancy, legal, technical, and many more which are essential to our daily needs?

Now let's consider these essential service sector availabilities in our country. The physical presence of these services very much exists, maybe it doesn't follow the rules or steps how it should have. But the service is being delivered to the target customers or the customers who need those services. Throughout this reading, we will consider how our essential services could be in a digital platform and the supply chain processes which will run in the backend to support the whole value chain. Digital transformation of services will not only increase the time value of money but also be a great way to serve hassle-free services to consumers.

Supply chain model for digital services

Nowadays, digital services are evolving towards virtual space such as cloud storage, Software as a service (SaaS) model, Artificial intelligence (AI), and web-based technologies. Due to this digital transformation, businesses are emerging as intelligent value-driven networks into which customers, suppliers, and merchants are required to integrate with a new supply chain model. Many services are hybrid processes, a mix of paper-based and IT-enabled ecosystems. Apart from physical interactions, services that have the capability to consider digital supply chains, are fully capitalize on smart technologies, connectivity, and system integration. The digitization of the supply chain model is the evolution of traditional supply chains to include digital products, services, and analytics.

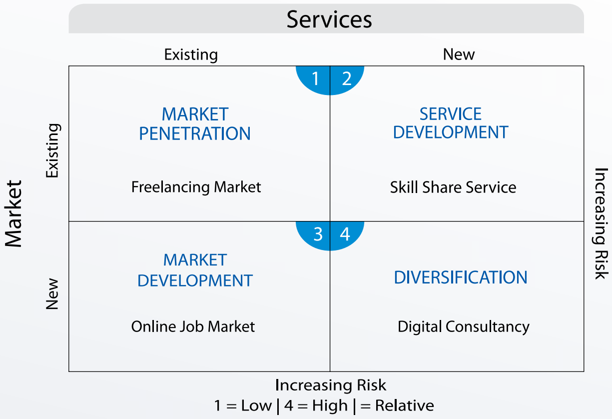


Figure 1: Ansoff Matrix

To analyze strategies for growth and expansion in digital service, Ansoff Matrix can provide the simplest framework to leaders for understanding growth potential and associated risk. For instance, considering the freelancing market, which is an existing service in an existing market, the level of risk is low. Here, the only key focus is to increase the market share through mass scaling. The second quadrant with risk level 2 is to develop new services in existing markets like sharing various skills such as architectural models. For the third quadrant, with existing services new market can be created, where there will be the risk of level 3. And finally, diversification - entering a new market with new services like in the construction industry design consultancy can be given through the digital supply chain process. Transforming the services into a different type of process, planning, supply, manufacturing, and logistics.

Digital supply chain model

A common digital supply chain model works on a simple request-response basis. Where a buyer or consumer orders required services or products through the front-end, then it processes the request to admin through Enterprise resource planning (ERP), and admin engages the respective seller or supplier if the product or service is not available in inventory. On the other hand, an independent merchant can also provide the requested product or service. From the existing inventory or from the merchant the response or required services are then delivered to the respective buyer or customer. Meanwhile, all the support functions initiate the cost, service charge, or delivery process through ERP and send the overall status to the admin panel.

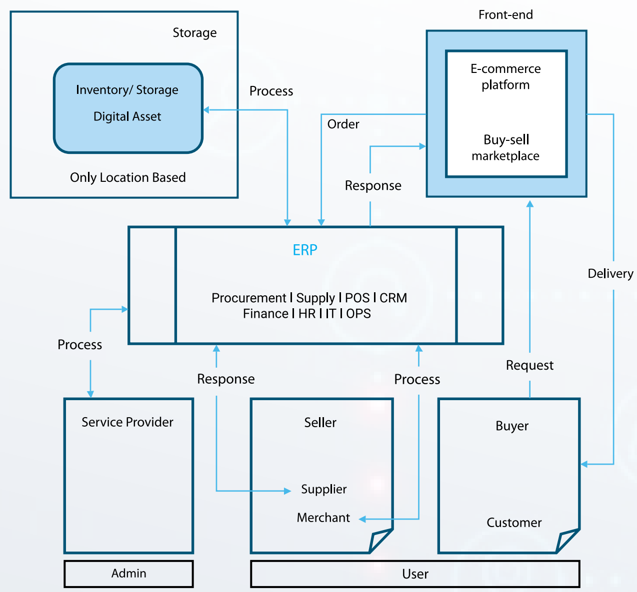


Figure 2: Digital supply chain model

Process innovation

Various software has been introduced to the supply chain process to achieve a step change in performance in more complex areas; mostly in need of saving time and cost. Thus, any transactions that are substantial amongst the user, are following either time-based resource occupancy or value-based subscription mechanism. This change has an impact on the transfer of data from one point to the other point by electronic means.

1. Role-based Users: In the proposed new supply chain model, users are grouped into different types such as customer, seller, administrator, and merchant. The user has defined a role and access to microservices. Some users can access but others can't. A user can be a buyer or a seller. In this system, a buyer and seller both are the same. This process can ease the complexity of connectivity with different users in a marketplace.

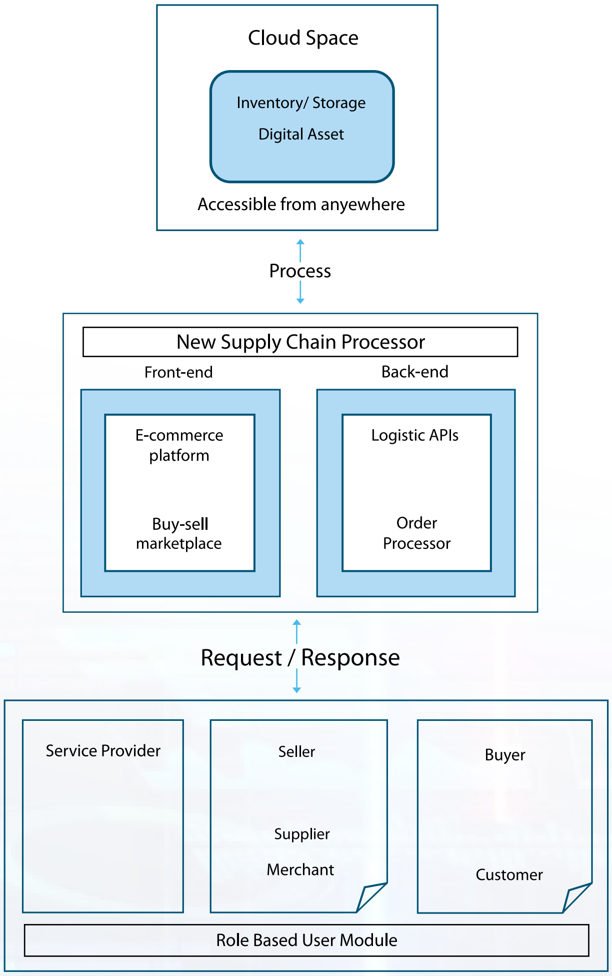


Figure 3: New supply chain model

2. Supply Chain Processor: Supply chain interface has recently observed new techniques of a single platform collaborating all vertical integration in a one-stop solution. All the records and transactions are accessible through an application programming interface (API) to make faster and easier communication over supply chain networks. A front end is usually for customers who come to the marketplace for buying or purchasing. On the other side, the backend is for the users who maintain the platform, sell products, and manage inventories. These two interfaces are highly connected through the database, networks, and logical algorithms. The order management system is now using middleware technologies to validate an order through artificial intelligence and automated process.

3. Cloud Storage: Digital assets are stored in physical discs in a commonly used supply chain platform. Physical storage is being used for maintaining data privacy policy and security concerns. A new supply chain model can be introduced in cloud space so that data or information can be shared and accessible from any location and any format, which is a cost-effective solution. For further securities, this process can be updated to blockchain-based supply chain inventories. This is a decentralized, distributed, and often public, digital ledger consisting of records called blocks that are used to record transactions across many computers so that any involved block cannot be altered retroactively, without the alteration of all subsequent blocks.

Benefits

McKinsey Digital Global Survey in 2016 shows that digital transformation of the end-to-end supply chain processes will result in two-thirds of annual revenue growth and 75% above annual EBIT growth.

However, it's been found that the company invests in other functions like marketing and distribution, products, and services. And only 2% of respondents from the survey reported that their companies are focusing on digital transformation. Following are the core benefits of transforming into digital supply chain services.

1. Improved Visibility: Digital supply chain will provide visibility and real-time service assurance between the seller (supplier or merchant) and customer. This way customer experiences can be taken into consideration for further improvement.

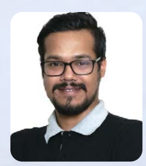
2. Process Automation: Traditional papers and manual supply chain processes are eliminated in the digital supply chain. Requesting for follow-up or update through mobile or emails can easily be forgotten as the digital platform provides a real-time update for all internal and external stakeholders.

Digitalization also reduces the traditional process maps and improves efficiency, increases performance, and reduces lead time, which eventually ensures profitability.

3. Cost Reduction and Accelerated Innovation: The overall up-to-date information on requirements and deliverables are in a single platform which essentially reduces costs. End-to-end information sharing and collaboration reduce time to market by 20% and accelerate innovation which increases 3 times return on innovation.

4. Data Analytics: Shared data analytics can be a guideline for the future advancement of the business, and predictions on historical data can improve better decision-making.

There are always opportunities in a new process. This process is ever-changing with the adaptability of any transformation. Managing scalabilities are the recent challenges that every technology leader is facing in adapting to worldwide transformation. For new concepts in service-related inventory, management tools are required to revamp and migrate to more dynamic systems. Innovation in storage, security, and integration amongst the whole digital ecosystem needs automation, preventing data loss, and solving key business problems.



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STRATEGIC SOURCING

A Critical Element for Supply Chain Success

Not so long ago, the purchase function was seen to be monotonous paperwork, dull and more of an administrative function. The purchase team would aim to keep feeding the store and avoiding the stock out situation. Today the situation has changed completely. The procurement function is viewed as a strategic undertaking that adds value to the overall business process.

In today's competitive business climate, supply chain management professionals are constantly in search of innovative ways to reduce costs, assure and improve the quality of the final product and achieve a faster time to market. One aspect of overall procurement management that might assist in achieving these supply chain objectives is strategic sourcing.

Strategic Sourcing is a growing practice among professionals and organizations in the field of procurement. It is not a one-time effort but a systemic process that continuously re-evaluates the company's purchasing activities. It intends to optimize the sourcing process by developing long-term and mutually beneficial relationships with the suppliers and the stakeholders. To fully understand the concept of strategic sourcing, it is important to draw the lines between different types of sourcing.

What is Sourcing?

In simple terms, sourcing means finding the new or potential supplier. Sourcing involves all the activities needed to find the best suppliers for goods and services to prepare the groundwork for effective procurement.

Categories of Sourcing:

- **Reactive sourcing:** As the name implies, no proactive strategies are set in place for this type of sourcing. So, this sourcing function happens in an entirely reactive mode, for example, fulfilling the requisition demands or requirements from business as and when they arise.
- **Tactical Sourcing:** This means a routine and, on occasion, reactive approach to sourcing to cover business requirements that cannot be planned in advance. Tactical sourcing is short-term and transactional and is usually practiced in small- and medium-sized manufacturing firms. Though tactical sourcing aims to ensure

the availability of the right material at the right cost and time, it does not attempt to establish deep supplier relationships that can support the company's broader goals.

- **Strategic Sourcing:** Strategic sourcing refers to a continuous assessment of the sourcing activities performed by an organization. It targets lowering the Total Cost of Ownership (TCO) and minimizing the risk factors associated with supply chain management. Also, it determines an organization's relationship with its suppliers.

THE SEVEN-STEP GUIDE TO STRATEGIC SOURCING

Finding suitable sources—or, to put it another way, acquiring the appropriate products—is the aspect of the supply chain that presents the greatest challenge for many businesses. No matter the purchasing size, the 7-step strategic sourcing practice has been tested and proven effective for sourcing products and services. The results could be cost-saving, greater value-added and time saved. To effectively implement the strategic sourcing process in the organization, the systematic seven crucial steps flow as

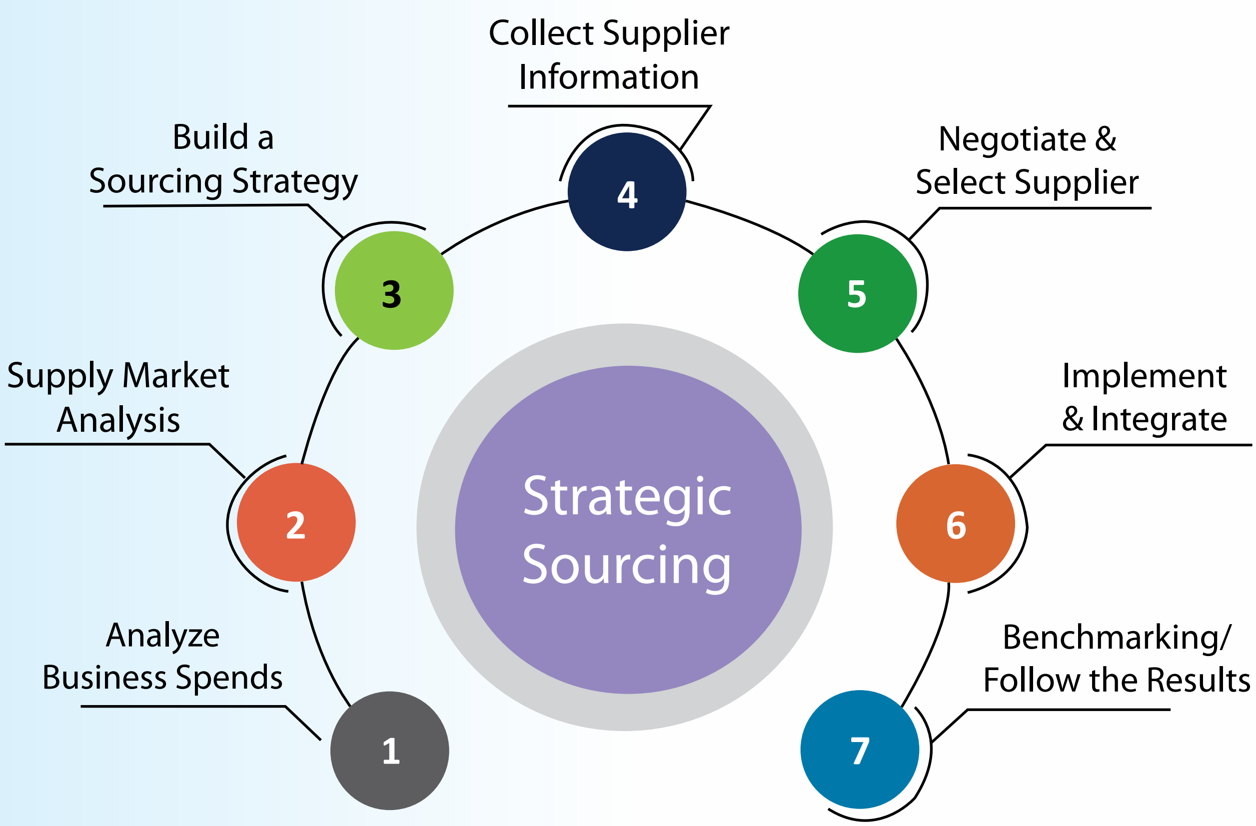

Figure 1: 7-step strategic sourcing process

1. Analyze Business Spends:

The first step is identifying the sourcing category or commodity, such as the quantity, types, and sizes of products, and determining how much was spent on products and services, current prices and suppliers, and specifications. This step also involves the creation of user profiles. For example, who they are, where they are located. It is always good to gather as much information as possible in this step. The following questions are associated with a spend analysis:

Figure 2: Spend Analysis

2. Supply Market Analysis:
The collection and analysis of supply market data is referred to as market analysis. You can get the information you need from reports and statistics that have been published, or you can do it yourself and go to trade shows, look up suppliers online, and ask experts for advice. As you have seen with many of the recent supply chain bottlenecks, you need to analyze if this is a product you need from overseas or buy it locally. Will you be able to receive it in a timely manner if you purchase it overseas or locally? All these things need to be analyzed with the market supply. Performing market analysis will help you determine what strategy approach better fits with the type of service you are sourcing.

3. Build a Sourcing Strategy:
Developing a sourcing strategy is something that should be done by the procurement team to be the most effective. Keep in mind; you are not selecting a supplier yet. You are outlining the qualification criteria and narrowing the options in your supplier pool. The end goal is to figure out from whom and where you will buy your desired goods or services while trying to cut costs and risks as much as possible. In this step, both current and potential suppliers should be taken into consideration. Look at your existing suppliers and see what requirements they can and cannot meet, and think about what you want from potential suppliers. You need to have a clear idea of your business's end goal and the minimum requirements for your suppliers. In this way you can be sure that your selected strategy aligns with your business requirements, competences, and resources.

4. Collect Supplier Information:
Notice that you did not contact any potential suppliers in the first three steps. Instead, it was all about fully comprehending both the reason you wanted to source it and the item itself. You will need complete supplier information to back up the data you gathered in the previous steps. Procurement teams use three main requests to find potential suppliers. Requests for Quotations (RFQs), Requests for Proposals (RFPs), and Requests for Information (RFIs) are all examples of these. Ensure that you clearly communicate your business requirements so that suppliers can submit exact information relating to it.

5. Negotiate and Select Supplier:
As of now you have contacted several suppliers, you have probably started to pin down which suppliers you may want to work with. In this step, you begin a negotiation phase and make the final decision about whom you will buy the product or commodity from and why. Most types of sourcing will have some negotiations. The things you need for your actual product or commodity—such as volume, quantity, price, and packaging—could be the subject of the negotiations. By studying these aspects of the process, you can be sure that you will get the product you want at the right price, in the right quantity, and of the right quality. Preferably, you will want someone delivering high quality and maximum cost savings. When you narrow down on the perfect supplier, initiate the onboarding and contracting process.

6. Implement and Integrate:
You begin informing those who will be a part of your supply chain that you have made the decision to purchase from them after you have concluded all negotiations with potential suppliers. You begin to incorporate them as one of your stakeholders at this point. As you start to integrate and implement these suppliers as part of your supply chain, you should hold meetings to fully incorporate them so that they can understand your requirements and their success standards. Many people ignore this step or feel that the supplier should have already understood your requirements. But fact is that different companies may have further requirements, so it is vital to state all of your needs clearly.

7. Benchmarking:
Strategic sourcing does not end simply at choosing the supplier. Starting with benchmarking the product's status, continuously monitoring the results, and ensuring that the goal is being achieved, measuring the performance of the supplier over time is essential. You will be able to quickly identify any areas of concern and notify your supplier to address them in a manner that has the least amount of impact on the company.

The strategic sourcing process is a cycle. Therefore, once the benchmarking has been done, you have to return to step one and resume the process. Because the market is always changing, it is important to think of strategic sourcing as a cycle. Therefore, in order to maximize your ROI (return on investment), you should constantly reevaluate your sourcing procedure and the performance of your suppliers.

THE KEY BENEFITS OF STRATEGIC SOURCING

Strategic Sourcing promotes a lot of benefits not just for the procurement department, but for the whole company as well.

- **Identifies Multiple Suppliers:** Typically, business firms face difficulty in getting hold of the right suppliers. If multiple qualified suppliers are present in the market, companies will have choices. If one vendor has limited stock availability, business firms have the option to switch to other vendors.
- **Improves Cost Savings:** This is what primarily draws organizations to the idea of strategic sourcing. When you are generating the list of potential suppliers and ask them to offer their best price, you select the one that is better suited for the company in terms of quality and price. Right prices with the best quality help the company to achieve a lot of cost savings, and that is what strategic sourcing offers.
- **Risk Mitigation:** Strategic Sourcing follows a cost-focused approach to offset potential risks. Close supplier relationships help companies point out and resolve probable challenges quickly.
- **Builds Supplier Relationships:** Having a solid supplier relationship can be an essential part of any business objective. The right supplier can help you develop new products, or they may be willing to give an exclusive product that can benefit the overall company's success and strategy.
- **Better Alignment of Sourcing and Business Objectives:** Naturally, the sourcing activities must fall in line with the business objectives.

One of the tasks of strategic sourcing people is to find and analyze suppliers. By analyzing each supplier's profile and core competencies, companies can match their objectives with the right suppliers.

SOURCING DECISIONS IN MOMENTS OF CRISIS

Companies and policymakers have had to reevaluate their priorities, shifting from efficiency to resilience because of the pandemic and Russia's invasion of Ukraine. In supply chain management, "Just in Time" was the norm until recently. It was thought to be inefficient and expensive to stock up on resources, intermediates, and finished goods. Instead, businesses tried to only acquire and produce what they were confident would sell. The pandemic and the war between Russia and Ukraine caused resource prices to rise dramatically, shipping costs to skyrocket, supply chains to be disrupted, and customer behavior to shift dramatically. It is no longer a bad idea to keep more products and resources on hand. Here are two supply chain risk management methods worth incorporating into your business strategy.

Turning towards resilience:

Manufacturing supply chains have been turned on their heads. Businesses are moving away from "Just in Time" and toward "Just in Case". Especially during times of crisis, businesses with strong supply chains consistently outperformed their rivals. To lessen their vulnerability to disruptions in the supply chain, numerous businesses were looking for local suppliers and stocking up on their inventory.

Diversifying supply chains:

Another way for supply chains to become more resilient is by reducing their dependency on a single trade partner. The COVID pandemic and resulting economic turmoil has clearly exposed the vulnerability of global supply chains and highlighted the dangers of relying on the manufacturing facilities of a single country, China. Companies are now admitting that dependence on any single country is unwise. Excessive reliance on one specific location or supplier can bottleneck your supply chain and add a dimension of risk. We need to diversify our supply chains since it reminds the old and proven proverb "Don't put all your eggs in one basket.". Future supply chain models should spread the eggs across multiple baskets – i.e. development of suppliers in alternative countries.

The growth of the global marketplace in recent years has made it essential for companies to take a more holistic approach to the integration of supply chain processes and overall business growth. Strategic sourcing is a distinct area whose potential and profitability is just beginning to be realized. Because it focuses more on establishing a long-term relationship than on other sourcing parameters, strategic sourcing is receiving a lot of attention. To improve the company, suppliers and companies collaborate to develop new strategies. A strategy for determining whether a company's objectives are in full alignment with those of its supplier base is known as strategic sourcing.

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SIX Ways to Optimize the Costs in a Supply Chain

Supply chain management is an integral part of any business. It's the process of planning, controlling and optimizing a company's supply chain to achieve the best possible results in terms of cost, quality and service. Some common objectives that a company may want to optimize are profit maximization, reducing cost and supplier development.

The cost optimization strategy entails finding ways to reduce the costs associated with production and distribution while maintaining or improving quality. This can be done by analyzing the supply chain network for potential savings opportunities, such as cutting down on transportation costs by opting for less expensive shipping methods or finding better suppliers. Following are the ways for any organization to optimize costs in their supply chain management.

1. Choose the Right Suppliers

Suppliers are the backbone of any successful supply chain. The best way to manage the costs is to choose suppliers that can deliver the required quality and quantity of goods at a reasonable price. The supplier selection process starts with thorough market research. This will help us understand our competitors, find suppliers that meet our needs and save time in selecting them during the negotiation process. We need to consider a few things while selecting a supplier. For example,

i) Quality assurance
ii) Delivery Lead time
iii) Payment terms
iv) Responsiveness of supplier etc.

Choosing the right supplier is important because it can determine the success of a business. We need to know what we are looking for and have clear terms of engagement to make sure that we get what we want and don't get stuck with something that doesn't work for us.

One way to reduce costs is by implementing vendor management software that will help to monitor suppliers' performance levels so that we will know if they are meeting our expectations or not.

2. Manage Inventory Effectively

Inventory management is the process of managing an organization's inventory levels to reduce the cost of holding that inventory. Inventory management is a complicated task and it can be difficult to find a balance between maintaining enough inventory to meet customer demand and keeping costs low. The key to successful inventory management is understanding what drives the costs and then taking necessary steps to optimize those.

Inventory can be managed in four ways:

- Planning and managing stock by forecasting data analysis.
- Follow techniques like ABC Analysis, Fast, Slow and Non-Moving (FSN Model), Economic Order Quantity technique, Just in Time (JIT) model etc.
- Reduce the amount of inventory on hand by decreasing production or increasing sales based on customer demand.
- Conducting audit of inventory

3. Monitoring Customer Demands

Supply chain management requires a lot of planning and coordination to keep the supply chain operations smoothly. Monitoring customer demand is one of the most important supply chain management tasks that we need to focus on. It helps us maximize profitability by keeping inventory levels low, reducing costs and increasing customer satisfaction.

4. Sales and Operations Planning

Sales and Operations Planning (S&OP) is a process that helps organizations to align their sales, marketing and operations plan with the company's strategic goals. It is also a process that helps to optimize the costs in the supply chain. S&OP is an essential tool for any organization because it helps them to identify and plan for potential risks. The tool also provides information about the current market trends and forecasts.

The S&OP process includes forecasting, which involves estimating demand for products or services in the future, as well as making long-term plans for production capacity, inventory levels, staffing and other resources required by the organization to meet customer needs.

5. Centralized Management Software

Centralized Management Software provides an integrated system for managing the entire supply chain. It helps in optimizing cost and increasing efficiency.

This software can be used in various industries such as manufacturing, logistics and distribution, retail, and wholesale.

Some of the features of this software are:

-Integrated Systems: Centralized Management Software provides an integrated system for managing the entire supply chain. This is done by integrating all different aspects of the business such as production, sales, distribution etc.

-Automation: Centralized Management Software automates repetitive tasks by providing a single platform to manage all processes from one place. This saves time and resources which allows businesses to focus on more important tasks like customer service or research and development.

-Inventory management: Centralized

Management Software manages inventory by using a single database for all inventory items which allows businesses to make better decisions when it comes to their inventory levels or price changes across their product lines.

6. Transportation Costs

To optimize the cost in supply chain management, it is important to identify which type of cost is more important for the company's bottom line and then make decisions accordingly.

Also, this cost can be optimized by using alternative transportation routes and modes.

The transportation costs of a supply chain are the costs incurred by the company for moving goods from one place to another. These costs can be broken down into two types, fixed and variable. Fixed costs are those that do not change with the number of shipments, such as rent and insurance. Variable costs are those that changes with the number of shipments, such as fuel and labor.

In summary, a supply chain is a network of organizations and people involved in the production and distribution of goods or services. These entities may be suppliers, manufacturers, wholesalers, retailers, transportation companies, financial institutions, governments or customers.

As the goal of any supply chain is to optimize the costs, we need to understand and control the cost factor to reduce the cost and increase the profit.

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Using Excel in Supply Chain

Introduction:
Microsoft Excel is a spreadsheet that helps us to organize data in rows and columns of cells. It is highly flexible, with a vast list of functions, possible to install Add-Ins with advanced features, a powerful Data Import feature, and a lower cost for installation. Microsoft Excel has many powerful features, and by using those, we can easily record, calculate, analyze and automate our reporting.

Microsoft Excel is used for a variety of purposes worldwide. Millions of companies use the software every day. For accounting, finance, HR and payroll activity, stock management, sales reporting, product information management, performance analysis, and statistical analysis, everywhere we need excel. In the supply chain, excel is used for data evaluation, calculations, inventory management & tracking, demand planning, logistic planning, scheduling, and many other functions. Learning excel is essential for all levels of a supply chain professional.

In this article, I will discuss a few Excel formulas and features that a Supply chain Professional should know to improve efficiency and save valuable time.

History of Excel
Microsoft released Excel in 1985 as an early application for the Apple Macintosh computer. It was one of the first spreadsheets to offer a graphical user interface and pull-down menus along with compatibility with a mouse. A Windows version followed in 1987. In those early years of the personal computer, Microsoft hoped to displace the then-leading spreadsheet software Lotus 1-2-3. The strategy succeeded, and by 1988 Excel became the most widely used spreadsheet software, and still, it is continuing its market-leading position. Microsoft maintains its advantage with regular new releases.

Dynamic Arrays: Dynamic Arrays are the most significant change to Excel formulas. Maybe the biggest change ever, and it is a game-changing feature. This is because Dynamic Arrays let you easily work with multiple values simultaneously in a formula. These are essentially Array Formulas but they “Spill” automatically into neighbouring cells and do not need the ctrl-shift-enter to create them. Dynamic arrays started appearing in pre-releases about 2018 and, as of March 2020, are available in published versions of Office 365 provided a user selected “Office Insiders.”

Using Excel in Supply Chain Activities

Nowadays, the Supply Chain Management environment requires plenty of artistic vision, brainstorming, and inventiveness along with usual technical competencies. However, if you are a professional in supply chain management, then you should know that Excel comes in handy during everyday operations of Supply Chain and Logistics activities.

A good portion of your job as a Supply Chain Professional goes into data gathering, analysis, and creating meaningful inferences for the business. All these activities imply spending a considerable period of valuable time on the Excel spreadsheet environment. Following formulas and functions will make your life easy.

Text Functions

Excel text functions help clean up text / alphanumeric values, extract parts of data from a cell, correct characters, and present combined results in output pages. Text functions like TRIM, CLEAN, RIGHT, LEFT, MID, FIND, SEARCH, UPPER, LOWER, PROPER, LEN, and SUBSTITUTE are essential for supply chain professionals.

IF Function:

We use the IF function to calculate situational or conditional calculations. With the If function, we can quickly make logical comparisons to produce an outcome based on specified conditions. Syntax of IF Function is “IF(logical_test, [value_if_true], [value_if_false])”. This Excel function allows for two possible outcomes: one based on conditions being met (“true”) and one based on conditions not being met (“false”). The IFS function or a ‘nested’ IF function allows for multiple outcomes by creating a decision tree.

AND/OR Function:

The AND function is a logical function that checks multiple conditions and returns TRUE if all of them are true. Otherwise, a FALSE is returned. The syntax of AND function is “AND(logical1, logical2…)”. The OR function works in the same way as the AND statement. However, it returns TRUE if any of the conditions are true. Following are the explanations of the AND & OR function

Probabilities	Logic 1	Logic 2	AND Function	OR Function
1	Met /TRUE	Met /TRUE	TRUE	TRUE
2	Met /TRUE	Not met /FALSE	FALSE	TRUE
3	Not met /FALSE	Met /TRUE	FALSE	TRUE
4	Not met /FALSE	Not met /FALSE	FALSE	FALSE

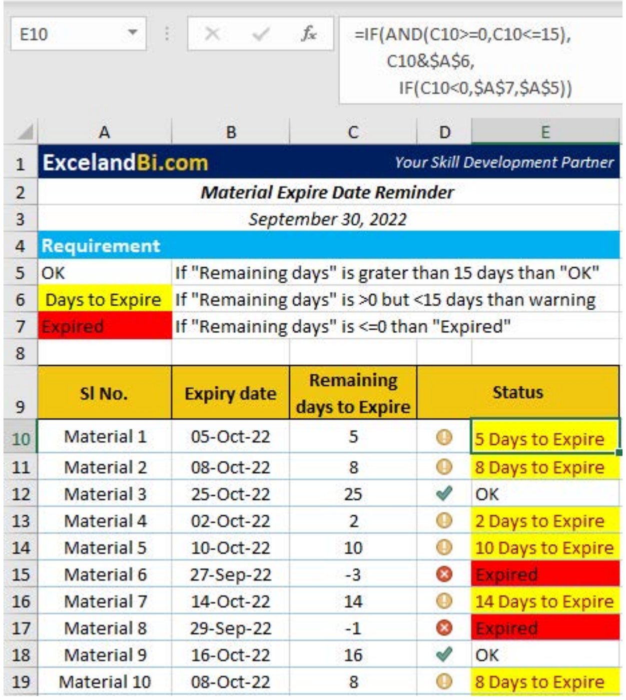
AND/OR function is frequently used in conjunction with an IF statement. The IF statement performs specific actions based on whether the AND/OR statement is TRUE or FALSE.

Conditional Formatting Formula

Conditional Formatting (CF) makes it easy to highlight specific values or make particular cells easy to identify. You can use conditional formatting to highlight cells containing values that meet a particular condition. Or you can format a whole cell range and vary the exact format as the value of each cell varies. To apply CF, select your data (where you want to use CF) and go to Home>Style>> Conditional Formatting. You will get four types of CF.

To highlight	Do This
Values in specific cells. Examples are dates after this week, numbers between 50 and 100, or the bottom 10% of scores.	Point to **Highlight Cells Rules** or **Top/Bottom Rules**, and then click the appropriate option.
The relationship of values in a cell range. Extends a band of colour across the cell. Examples are comparisons of prices or populations in the largest cities.	Point to **Data Bars**, and then click the fill that you want.
The relationship of values in a cell range. Applies a colour scale where the intensity of the cell's colour reflects the value's placement toward the top or bottom of the range. An example is sales distributions across regions.	Point to **Color Scales**, and then click the scale that you want.

Using the above functions, we can prepare an excel model which will give us a reminder



E10 =IF(AND(C10>=0,C10<=15), C10&A6, IF(C10<0,A7,A5))

	A	B	C	D	E
1	ExcelandBi.com				Your Skill Development Partner
2	Material Expire Date Reminder				
3	September 30, 2022				
4	Requirement				
5	OK	If "Remaining days" is grater than 15 days than "OK"			
6	Days to Expire	If "Remaining days" is >0 but <15 days than warning			
7	Expired	If "Remaining days" is <=0 than "Expired"			
8					
9	Sl No.	Expiry date	Remaining days to Expire		Status
10	Material 1	05-Oct-22	5		5 Days to Expire
11	Material 2	08-Oct-22	8		8 Days to Expire
12	Material 3	25-Oct-22	25		OK
13	Material 4	02-Oct-22	2		2 Days to Expire
14	Material 5	10-Oct-22	10		10 Days to Expire
15	Material 6	27-Sep-22	-3		Expired
16	Material 7	14-Oct-22	14		14 Days to Expire
17	Material 8	29-Sep-22	-1		Expired
18	Material 9	16-Oct-22	16		OK
19	Material 10	08-Oct-22	8		8 Days to Expire

VLOOKUP

Supply Chain professionals need to analyze multiple data sets from different people in different formats and help with various processes. VLOOKUP function joins data sets together and allows you to take information from one and populate it in another table/dataset. For example, using the Purchase Order number, you can use VLOOKUP to pull in the delivery date from a delivery promise sheet to compare against the original requirement in your outstanding PO list, or you can investigate a supplier's outstanding invoice list against your list to investigate the current status. Syntax is VLOOKUP(lookup_value,table_array, col_index_num, range_lookup)

SUMPRODUCT

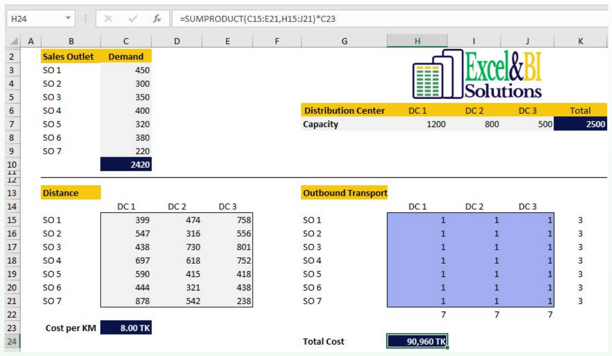
The SUMPRODUCT function returns the sum of the products of corresponding ranges or arrays. The default operation is multiplication, but addition, subtraction, and division are possible. Syntax is SUMPRODUCT(array1, [array2], [array3]…)

SOLVER

Solver is a Microsoft Excel add-in program you can use for what-if analysis. Use solver to find an optimal (maximum or minimum) value for a formula in one cell — called the objective cell — subject to constraints, or limits, on the values of other formula cells on a worksheet. The solver works with a group of cells, called decision variables or simply variable cells, that are used in computing the formulas in the objective and constraint cells. The solver adjusts the values in the decision variable cells to satisfy the limits on constraint cells and produce the result you want for the objective cell.

Using SUMPRODUCT and SOLVER, we can solve Transportation problems.

Example: Total demand is 2420 in seven Sales Outlets. The total capacity is 2500 in three Distribution Centers. We aim to find the minimum cost for transporting the demanded items from three DCs to seven SOs.



H24 =SUMPRODUCT(C15:E21,H15:J21)*C23

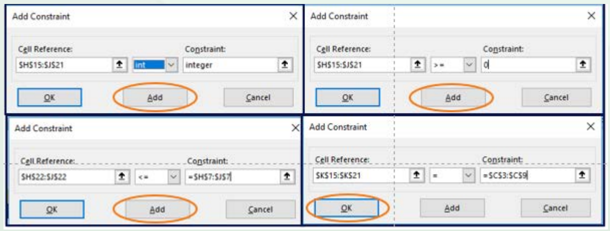
Sales Outlet	Demand
SO 1	450
SO 2	300
SO 3	350
SO 4	400
SO 5	320
SO 6	380
SO 7	220
	2420

Distribution Center	DC 1	DC 2	DC 3	Total
Capacity	1200	800	500	2500

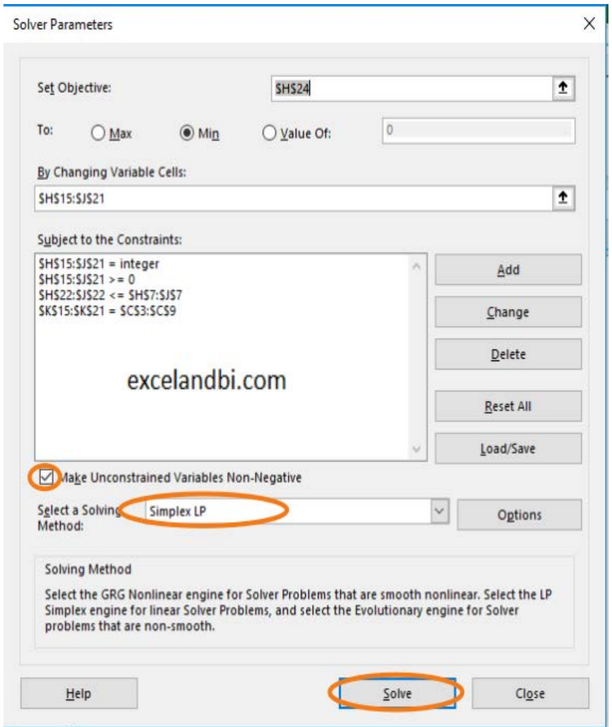
Distance	DC 1	DC 2	DC 3
SO 1	399	474	758
SO 2	547	316	556
SO 3	438	730	801
SO 4	697	618	752
SO 5	590	415	418
SO 6	444	321	438
SO 7	878	542	238
Cost per KM	8.00 TK		

Outbound Transport	DC 1	DC 2	DC 3	
SO 1	1	1	1	3
SO 2	1	1	1	3
SO 3	1	1	1	3
SO 4	1	1	1	3
SO 5	1	1	1	3
SO 6	1	1	1	3
SO 7	1	1	1	3
	7	7	7	
Total Cost	90,960 TK			

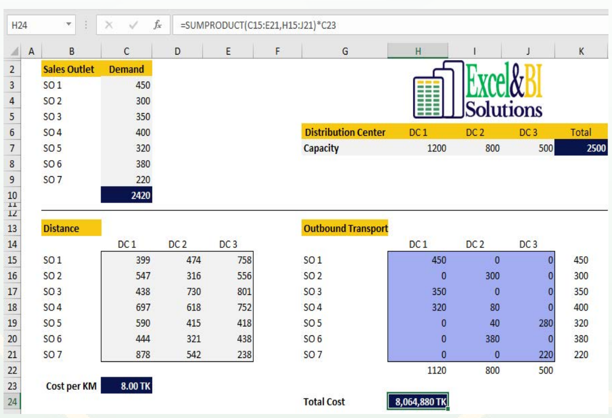
You can calculate the total cost using the SUMPRODUCT Function in Cell H24. Go to the data tab of the ribbon, and in the analyze group, click solver, then add Constraint to Solver.



Check the constraints and click solve.

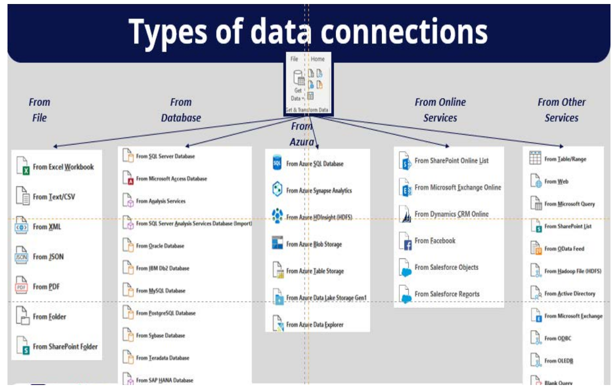


The solver comes up with the cheapest solution.



Power Query

Power Query is a business intelligence and the most powerful data automation tool found in Excel 2010 and later. It is an application for transforming and preparing data. With Power Query, you can get data from sources using a graphical interface and apply transformations using a Power Query Editor. Using Power Query, you can import/connect data into Excel from 100+ external sources, clean it, transform it, and then reshape it according to your needs.



Data Model & DAX

The data model in Excel is a type of data table where two or more two tables are in a relationship with each other through a common or more data series. In the data model, tables and data from various other sheets or sources come together to form a unique table that can access the data from all the tables.

Excel users typically use formulas to create a massive table containing all data to analyze. They need this big table so the Pivot Tables can source a single table. Yet by creating data models/relationships, you surpass the need for using VLOOKUP, SUMIF, and INDEX-MATCH formulas. In other words, you don't need to get all columns within a single table. Through relationships, the Data Model can access all the information it needs even when it resides in multiple places or tables. After creating the Data Model, Excel has the data available in its memory. And by having it in its memory, you can access data in new ways. For example, you can start using multiple tables within the same pivot table.

DAX is a formula language for creating custom calculations in Power PivotTables. You can use the DAX functions designed to work with relational data and perform dynamic aggregation in DAX formulas. DAX formulas are very similar to Excel formulas. To create a DAX formula, you type an equal sign, followed by a function name or expression and any required values or arguments. We can automate almost every report using Power Query, Data Model, and DAX. We are giving a simple example of an Inventory Management Automation Report

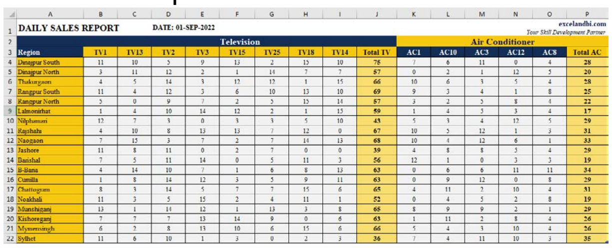
Example: ABC Trading company sells various categories of television and Air Conditioner. They compile and keep their weekly order/

Weekly Purchases Report DATE: 08-SEP-2022 — excelandbi.com, Your Skill Development Partner

Region	Television													Air Conditioner						
	TV10	TV13	TV21	TV3	TV6	TV17	TV18	TV14	TV19	TV5	TV11	TV12	Total TV	AC6	AC10	AC2	AC3	AC8	AC9	Total AC
Barishal	40	11	10	16	31	13	0	33	30	8	7	24	199	40	0	34	0	0	41	115
B-Baria	20	10	0	11	9	18	49	50	0	28	12	22	207	26	18	59	37	20	9	169
Chattogram	11	31	43	49	18	0	0	18	5	42	15	36	232	9	27	13	3	51	18	121
Cumilla	24	12	47	11	0	22	5	11	6	0	16	14	154	47	41	56	24	46	13	227
Dinajpur North	34	30	50	39	22	3	11	44	37	6	33	33	309	17	13	58	17	46	52	203
Dinajpur South	36	6	34	29	31	23	21	24	42	23	40	0	309	13	56	5	8	13	58	153
Jashore	19	33	21	0	36	15	48	10	33	29	18	34	262	28	34	7	40	32	33	174
Kishoreganj	5	8	39	34	30	13	50	0	23	5	44	23	251	21	23	24	38	3	17	126
Lalmonirhat	45	21	45	36	36	10	50	6	12	15	14	6	290	4	22	9	8	27	59	129
Munshiganj	23	5	33	6	23	22	8	25	32	14	25	26	216	60	40	11	45	60	44	260
Mymensingh	15	15	34	12	0	13	46	18	5	45	42	35	245	22	59	5	45	35	20	186
Naogaon	20	21	10	36	47	9	49	24	31	7	26	31	280	53	15	8	40	16	22	154
Nilphamari	42	12	35	42	40	22	26	30	29	13	12	30	303	19	59	45	45	8	14	190
Noakhali	23	31	26	27	47	22	0	27	11	5	36	33	255	33	60	45	11	32	56	237
Rajshahi	43	30	5	30	45	15	9	16	25	35	5	23	258	56	0	41	16	5	3	121
Rangpur North	49	6	29	46	40	31	45	37	36	41	15	14	375	31	7	41	31	1	47	158

purchase data in the following manner

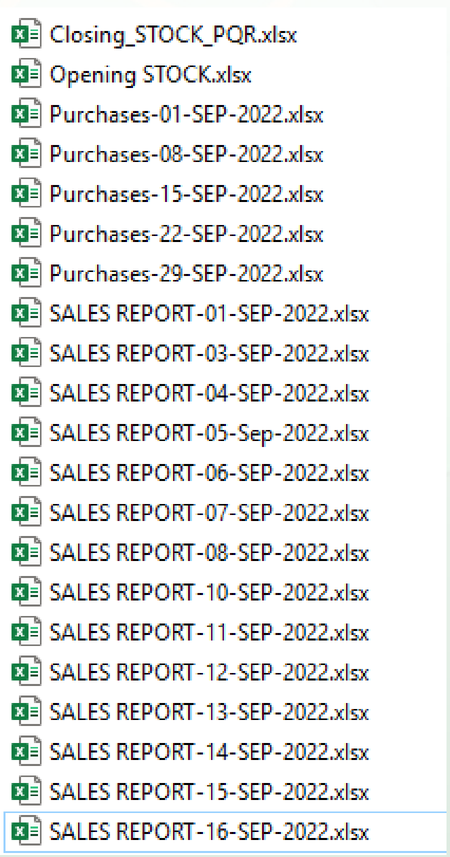
Following is their daily region-wise and product-wise sales report



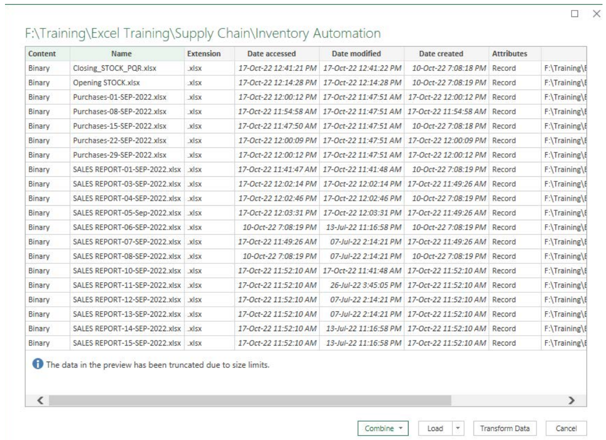
DAILY SALES REPORT DATE: 01-SEP-2022 — excelandbi.com, Your Skill Development Partner

Region	Television									Air Conditioner					
	TV1	TV13	TV2	TV3	TV15	TV25	TV18	TV14	Total TV	AC1	AC10	AC3	AC12	AC8	Total AC
Dinajpur South	11	10	5	9	13	2	15	10	75	7	6	11	0	4	28
Dinajpur North	3	11	12	2	1	14	7	7	57	0	2	1	12	5	20
Thakurgaon	4	5	14	3	12	12	1	15	66	10	6	3	5	4	28
Rangpur South	11	4	12	3	6	10	13	10	69	9	3	4	1	8	25
Rangpur North	5	0	9	7	2	5	15	14	57	3	2	5	8	4	22
Lalmonirhat	1	4	10	14	12	2	1	15	59	1	4	5	3	4	17
Nilphamari	12	7	3	0	3	3	5	10	43	5	3	4	12	5	29
Rajshahi	4	10	8	13	13	7	12	0	67	10	5	12	1	3	31
Naogaon	7	15	3	7	2	7	14	13	68	10	4	12	6	1	33
Jashore	11	8	11	0	2	7	0	0	39	4	8	8	5	4	29
Barishal	7	5	11	14	0	5	11	3	56	12	1	0	3	3	19
B-Baria	4	14	10	7	1	6	8	13	63	0	6	6	11	11	34
Cumilla	1	8	14	12	3	5	9	11	63	0	9	12	0	8	29
Chattogram	8	3	14	5	7	7	15	6	65	4	11	2	10	4	31
Noakhali	11	3	5	15	2	4	11	1	52	0	4	5	2	8	19
Munshiganj	13	1	14	12	1	13	3	8	65	8	9	9	2	1	29
Kishoreganj	7	7	7	13	14	9	0	6	63	1	11	2	8	4	26
Mymensingh	6	2	8	13	10	6	15	6	66	5	4	3	10	4	26
Sylhet	11	6	10	1	3	0	2	3	36	7	4	11	10	3	35

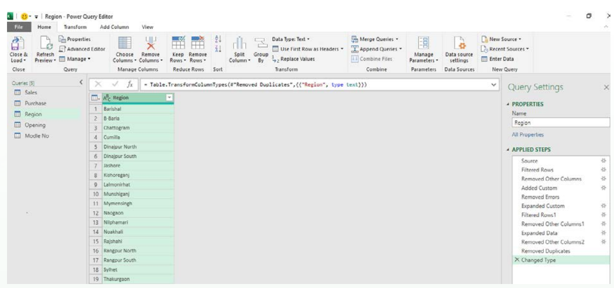
They keep all the purchases and sales reports in a folder



To create an automated inventory report to calculate product-wise and region-wise closing inventory from the above data, connect the folder to Power Query.

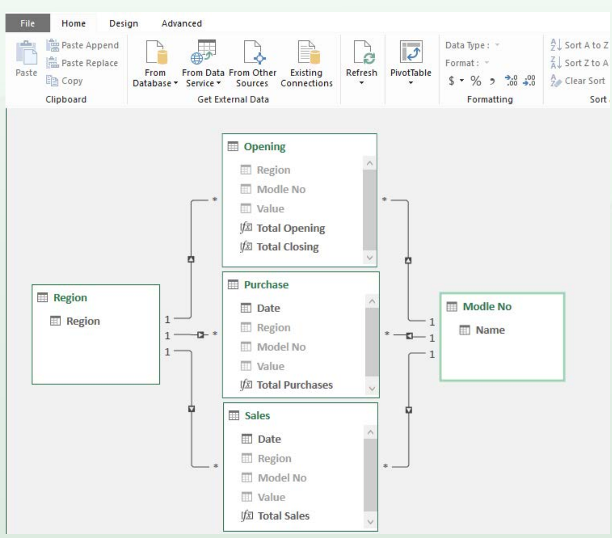


Create two additional tables for Region and



Model No.

Create Data Model/Relationship among the fact tables and dimension/lookup table using the common columns (foreign and primary keys). We can create a separate date table and connect it with fact tables.



From the data model/all the connected tables, we can easily calculate the total closing stock using DAX Functions.

Closing Stock	Category / Product Name															
	Television															
Region	TV1	TV2	TV3	TV4	TV5	TV6	TV7	TV8	TV9	TV10	TV11	TV12	TV13	TV14	TV15	TV16
Barishal	16	35	45	28	15	38	44	27	17	6	6	20	16	50	11	37
B-Baria	28	42	32	9	46	33	32	46	10	19	19	13	23	36	5	23
Chattogram	23	29	37	20	35	21	20	9	39	30	50	8	38	25	8	40
Cumilla	50	22	42	36	22	48	28	29	36	28	38	6	45	22	25	28
Dinajpur North	42	20	43	36	37	25	12	36	46	26	28	17	45	43	16	50
Dinajpur South	19	19	7	12	30	45	38	50	18	31	29	10	39	45	25	48
Jashore	47	15	46	38	10	26	48	25	40	12	41	8	34	34	50	30
Kishoreganj	40	7	48	8	38	32	32	32	19	11	37	34	15	40	24	39
Lalmonirhat	45	42	47	42	36	40	13	25	7	14	24	38	36	31	34	10
Munshiganj	11	34	43	6	42	42	44	33	24	8	5	6	19	25	38	17
Mymensingh	15	49	21	7	11	30	34	46	46	22	37	12	11	14	29	33
Naogaon	14	18	9	7	48	25	26	33	27	28	27	9	36	22	18	48
Nilphamari	35	32	44	13	15	5	47	48	37	13	15	21	21	49	11	15
Noakhali	35	43	33	29	34	49	12	10	43	16	14	12	13	41	28	8
Rajshahi	44	50	25	29	28	22	46	30	14	17	37	28	49	27	46	7
Rangpur North	27	49	39	47	24	50	18	45	5	13	31	20	35	10	35	34
Rangpur South	5	31	8	44	24	32	44	30	17	5	27	14	29	33	11	9
Sylhet	14	17	38	19	18	13	11	44	38	34	37	27	33	29	49	37
Thakurgaon	19	35	21	31	6	40	12	17	44	39	38	37	6	40	38	22
Grand Total	**529**	**589**	**628**	**461**	**519**	**616**	**561**	**615**	**527**	**372**	**540**	**340**	**543**	**616**	**501**	**535**

Queries & Connect..

Queries | Connections

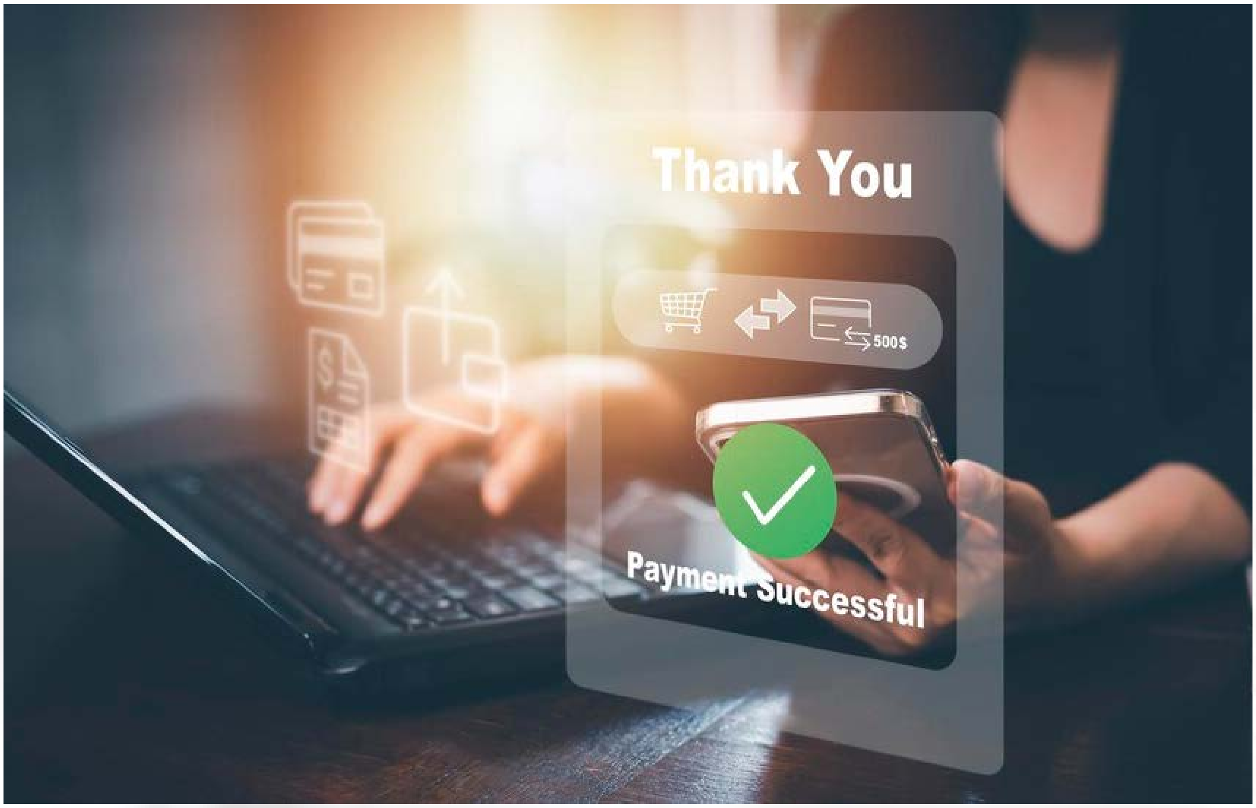
6 queries

- Sales
  185 rows loaded.
- Purchase
  191 rows loaded.
- Region
  19 rows loaded.
- Opening
  33 rows loaded.
- Modle No
  18 rows loaded.
- FilePath (F:\Training\Excel Tra...
  Connection only.

Conclusion:

Excel has become an essential computer program in workplaces around the world. In business, any function in any industry can benefit from those with strong Excel knowledge. In this era of Big Data, Excel is no longer a record-keeping, calculation, or computation tool. It became planning, budgeting, summarizing, analyzing, reporting, and automation tool. Even excel can be integrated with many systems and even used as middleware to bridge the gap between systems. If you're a larger business or have thousands of product lines and are using a SaaS or bespoke software system, Excel is still valuable.

Mohammad Refaul Karim Chowdhury
FCA, FFA, FIPA, MCT
CFO, Bangla Tel Group



DIGITAL Supply Chain Finance and Why TREDX?

After the economically difficult phases of thecorona lockdowns, there are now signs of upswing and economic recovery in many sectors, coupled with high pressure to innovate. The pandemic has triggered a real push towards digitalization in many companies. Innovative digital solutions support the diversification of the previous sales channels. While the investments sometimes only pay off in the medium to long term, the costs and personnel expenses are already incurred today. From these points of view, it is a real challenge for many companies to digitize and thus finance themselves in a modern way.
In this challenging environment, factoring, a well-known sales financing instrument, is gaining new impetus. Factoring reduces short-term liabilities and is therefore an important tool in working capital management. Innovative, digital ecosystems such as platforms or digital marketplaces simplify access to factoring for companies, improve the processes associated with this financing instrument and also increase its attractiveness.

In the era of intelligence and informatization, digital supply chain finance (DSCF) has become one of the important trends in the development of supply chain finance. With the gradual increase of DSCF suppliers and various requirements of small and medium-sized enterprises for suppliers in providing financing services, selecting the most suitable DSCF supplier is of great significance for most small and medium-sized enterprises to expand reproduction and improve competitiveness.
Most small and medium-sized enterprises

(SMEs) engaged in entity manufacturing often face the situation of low credit levels, few fixed assets collateral and scarce financing channel's. It not only hinders the transformation and upgrading of these SMEs, but also limits the operational efficiency of the whole industrial chain. The supply chain finance (SCF) is a financing mode in which financial institutions connect core enterprises with upstream and downstream enterprises to provide flexible financial products and services to suppliers with Technological and Economic Development of Economy.

To some extent, the SCF is conducive to solving the long-standing problem of financing difficulty and high cost in SMEs. At present, most literature concerning decision-making problems of the SCF mainly focus on evaluating the credit risk of SMEs from the perspective of SCF suppliers. However, there are only few literature on how to choose suitable SCF suppliers from the perspective of SMEs, which reveals that SMEs can only passively choose SCF suppliers to finance most of the time. This leads to some limitations of SCF in solving financing problems for SMEs with low credit level.

Compared with the traditional SCF, the innovation of DSCF is mainly manifested in three aspects: more abundant financial ecology, more intelligent financial services, and more significant effect of enabling efficiency. The DSCF reduces the credit risks of SMEs through extensive information, multi-dimensional data and multi-credit support technology, and thus effectively solves the financing difficulties of SMEs. The digital supply chain (DSC) can be regarded as an advanced intelligent technology system with massive data processing capability and good collaboration and communication for digital information of whole supply chain. Therefore, the DSCF can be seen as the combination of DSC and SCF. It is a product of the digital development of SCF, and can lower the financing threshold and expand the scope of financing services. Thus, it increases the possibility for financiers to select suitable SME suppliers for financing activities.

Why TREDX?

TREDX started with a mission to bring SMEs, corporates and financing partners together on single platform for working capital finance. SMEs can avail working capital by discounting their invoice without recourse to them or without loan liability.

Transparent and independent platform
Only TREDX has followed the business approach of a transparent and independent platform. We offer all SMEs, corporate companies and financing partners' access to a technological infrastructure on which they can operate working capital financing with sophisticated, fully automated solutions.

Therefore, all players in our platform, SMEs, corporate companies and financing partners, benefit from network effects and equal opportunities.

Factoring without recourse to the SMEs

Another key unique selling proposition of the TREDX is our product offering. Our corporate are given the opportunity to the SMEs to optimize their working capital by invoice discounting and without recourse to themselves. Once started, programs can be used flexibly and in line with the corporate strategy.

Liquidity

TREDX offers SMEs and Corporates the most diversified pool of liquidity. Once connected to the TREDX, the pool of financing partners can be expanded at any time. However, financing partners are also increasingly requested for new programs of connected companies and thus benefit from new investment opportunities beyond their customer base.

Regulated by Bangladesh Bank

TREDX is fully regulated by Bangladesh Bank. We do not regulate individual processes but follow strict regulatory standards in all our processes. We do this because we are convinced that only through strict compliance with regulatory standards, we will be able to meet the requirements of the future.

When it comes to the question “Why TREDX?”, our innovative digital solutions play a central role. We put a lot of energy into the technological development of our platform offering and its solutions factoring every day. This primarily benefits SMEs, corporate customers, and our financing partners. After all, why should a financing partner develop its own solution when there are FinTechs that already offer digital factoring solutions on an open platform with a lot of manpower and advanced knowledge? It has long been known that, if used correctly, FinTechs do not threaten financing partners, but offer a tool that can be used to carry out some of their tasks using state-of-the-art technology and to expand their business.

Md. Abdul Mabud (Tushar)
Chief Business Officer
TREDX

Digital Twin:

A Virtual Model for Physical End to End Supply Chain

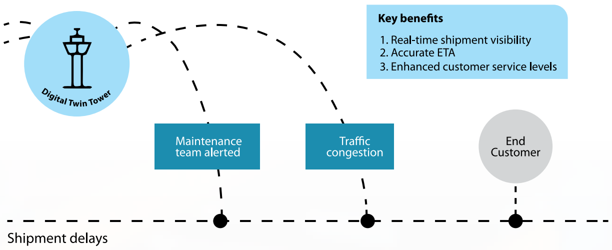
Once people used to have an idea that supply chains run automatically - like a magic. People thought about supply chains like they thought about electricity; everything just worked! But then a series of supply chain storms hit, and the power went out. Now they had to come to the hard part, maintenance and free of error. Disruptions made them realize that the chain must be resilient.

Today major companies are turning to digital technology, with a focus to develop their supply chains in a manner that will enable them to anticipate and avoid disruptions. One critical component of this shift is the use of digital supply chain design and planning technologies, such as the digital twin.

Digital Twins 101: Understanding the Technology

The very idea was originally developed by Michael Grieves. From his experience in Product lifecycle management, he came up with this concept. A digital supply chain twin, as defined by Gartner, is "A digital representation of the physical supply chain that can be used to create plans and make decisions."

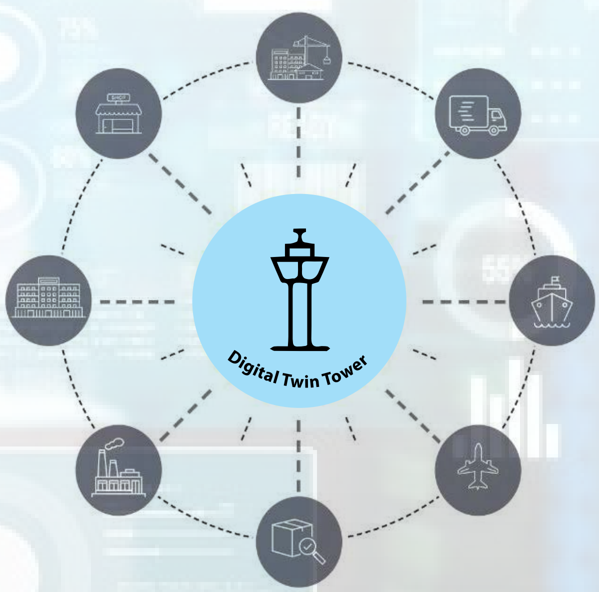
A Supply Chain Digital Twin is a precise simulation model of an actual supply chain that uses snapshots and real-time data to predict the dynamics of the supply chain. Digital twins are often used in manufacturing to model complex assets to forecast, analyze and understand their behavior over time and optimize asset maintenance and design. It allows businesses to test scenarios, model various nodes, modes, flows, and policies, and comprehend how decisions and disruptions will affect network operations by recreating their actual supply chain in a virtual world.



Engineers can identify behavioral characteristics and trends to improve the asset's overall performance by feeding real-time data into the model using sensors and applying advanced analytics capabilities. This strategy can be implemented on a larger scale. By applying it to multiple assets to model an entire manufacturing process, for instance.

Digital Twin in Supply chain: Necessity?

While most organizations still use static spreadsheets or planning approaches based on static assumptions to design and plan their supply chains, we must understand one factor that these tools have worked just fine in the past, but in todays fast paced variable supply chain scenario it is unimaginable to survive let



alone sustain. Many companies have realized that static models don't work well with the dynamic, always-changing supply chains of the real world. In fact, the top leaders in the supply chain have already taken advantage of digital twin technology.

However, a digital twin enables businesses to execute these dynamic testing and redesigns. It has the potential to be transformational. Because a digital twin allows organizations to pressure test their supply chain design, it is an essential component of constructing a supply chain that can not only withstand setbacks, but also quickly recover from disruptive events such as blocked transportation routes, distribution center shut downs, and so on.

A supply chain digital twin can be used for:

1. Realizing supply chain dynamics and behavior
2. Discovering Bottleneck
3. Assessing supply chain design changes and development
4. Monitoring risk and trying out contingencies
5. Detailed Transportation planning
6. Inventory optimization
7. Forecasting and testing operations over the coming days and weeks

A digital twin is a virtual reproduction of an entire supply chain, including thousands of assets, warehouses, logistics, and inventory locations. In doing so, it can provide a more complete picture of the dangers that can affect highly involved supply chains. The early detection of risk enables supply networks to be flexible, as disruptions can be lessened or avoided completely.

Organizations use digital twins to:

1. Provide greater visibility across their supply chain,
2. Identify patterns and discover opportunities for improvement,
3. Eliminate inefficiencies and optimize current processes.

Digital twins are a significant enabler of supply chain resilience because they enable firms to make better, timely, data-driven decisions during a disruption.

Regular supply chain simulation model and Digital twin: Distinguishing Factors:

♦ A supply chain digital twin is comprehensive enough to evaluate supply chain interactions, from macro changes in demand to the interior of buildings. It should provide services such as financial and SKU flow forecasting, analysis of demand fluctuation, and scenario testing.
♦ It utilizes real-time data sources, such as incoming shipment dates, vehicle positions, and inventory levels, to evaluate the present health of the supply chain and generate up-to-date forecasts. Quantifying the bullwhip effect of missing inventory, for instance.
♦ It provides adjustable notifications, alarms, and alerts to notify you of anomalous occurrences, such as service levels dropping below thresholds.
♦ It gives triggers that you may use to set up customized actions that will immediately take place when chosen situations arise, such as when there is a potential for stock to run out.
♦ It lets you design action plans for abnormal situations and test them for effectiveness.
♦ Digital supply chain twins integrate databases and business intelligence technologies in the IT ecosystem.

FMCG and Digital twin?

Companies like Unilever and DHL are using the technology for a resilient supply chain during the pandemic. Unilever aims to create virtual replicas of their factories to digitally rewire their supply chain. As Unilever Chief Engineer Dave Penrith says, twins allow to readily predict and respond to any kind of adverse situations.

Our FMCG companies can implement a “Strategic Digital Twin” leveraging satellite analytics, through a “Digital Twin Tower”, to monitor key distribution points and run lane analytics. It will allow the supply chain managers to gain access to deeper visibility. Strategic twins include simulation that allows taking both short & long-term decisions by identifying and estimating impact over a business in real time. FMCG companies will use the digital twins to model alternatives and determine a network design to optimize operations in chosen parameters. For example, firms can implement onshoring or nearshoring sourcing design based on the interpretations. Factors such as present and future demand patterns, operational expenses, service levels are considered in taking such decision. Similarly, FMCGs can simulate the factors and scenarios for modelling supply chain risks, minimize delivery times, and so on with the highest agility. Digital twins will also be used by Bangladesh based global FMCGs to unify their teams.

Digital twin technology provides tangible benefits to a company’s P&L

Annual 1% to 2% Revenue growth • Increased fill rates (on-time and in-full) • Increased speed-to-market • Increased strategic sales	Annual 10% to 30% Planning efficiency (SG&A) • Decreased manual intervention, duplication of efforts	One time 5% to 10% Inventory reduction • Improved inventory visibility and reliability
Annual 5% to 10% Increased throughput • Revenue growth • Improved on-time delivery • Improved working capital	Annual 10% to 30% Reduced expenses • Reduced expedited logistics costs • Reduced returns • Reduced fines from shipment delays	Annual 10% to 20% Reduce inventory write-off • Reduce excess, obsolete, damaged inventory

Is Digital Twin free of Challenges?

On the other hand, the difficulty with a digital twin is that it’s possible to acquire too much information and become lost in it. The digital twin and the insights it yielded would ultimately become less useful as the quality of the collected data deteriorated and became more difficult to maintain. However, a solid strategy and the appropriate AI technologies can assist avoid this.

Md Sairaz Samiuddin Niloy
Student
Department of Industrial and Production Engineering
Ahsanullah University of Science and Technology (AUST)

Global Supply Chain
News Corner

Amazon's **cloud** division unveiled a service called **AWS Supply Chain** to alert businesses when **inventories** are **low** and help them address supply issues.

3 major impacts of **Inflation**
Rising prices - shrinking demand for goods and services.
Driving up direct costs for materials, labor, energy, and transportation
Increased interest rates.

97% procurement professionals from US and UK are facing significant disruption in **direct materials** due to Covid and War.

Same day delivery growing from **$5.14 bn** (2021) to **$6.43 bn** (2022) at over **25%** growth rate.

Parking for Drivers causing **15%** of commercial **vehicle crashes** in US and raising problems in SC.

In pandemic time (2020), **online grocery sales** was **more than 3 times** than the **avg. annual growth to 9.5%**. Currently due to **unavailability** of items grocers **lost $11 bn**.

Stagnating vessel fleet has now spurred **recorded rates for ships** that **carry** as many as **6500 cars across the globe**. **Over a 60-day voyage** that would imply about **$740 per car**, up about **fivefold** since before the pandemic.

China controls more than **80%** of **solar panel manufacturing**, as well as an outsized share of **lithium** and other metals needed for **battery production**.

DHL plans to operate **60%** of its U.S. **vehicles electrically** by **2030**, and **reduce emissions** to **net zero** by **2050.**

Source: Reuters; CSCMP's Supply Chain Quarterly; Association for Supply Chain Management (ASCM); Bloomberg; Supply & Demand Chain Executive; MHD Supply Chain Solutions; The Economic Times; Supply Chain Management Review; Forbes.

Testimonials

It is a consolidated experience of supply chain professionals. You can see how SC is driving for efficiency/ agility.

Mohammed Zia Uddin, CSCM, FCILT
Supply Director, Bangladesh- Sri Lanka Cluster at Reckitt

Fantastic opportunity to meet top SC professionals. Really delighted to be part of this event.

Nasir Mahmud
Country Supply Planning Manager at Syngenta

Great experience of meeting industry expert and share thoughts. Honoured to be a part of it.

Deabasish Paul, CSCM™, CPLM
Deputy General Manager, Shah Cement

Initiatives taken by ASCPB are always excellent. Meetup, adda always helps professional to keep in touch with current SC situation.

Abdullah Farabi, PMP, PGDSCM
Deputy Manager- Project
Omera Petroleum Limited

Its really a great platform of SCM professionals and I am very excited to be here. I wish long live of ASCPB.

Bablu Roy
Manager Procurement
TotalEnergies Bangladesh (Total Gas)

It's very motivational new experience for me and hopefully we get more new things Supply Chain Street.

Mohammad Mofazzel Hakim
Senior Executive
Energypac Power Generation Ltd.

It's a nice endeavour to be introduced with one another. This is my first time I have attended this form's activities. I wish my best support and to be supported through this good forum.

ASM Saifur Rahaman Chowdhury
Sr. Manager & Head of Department, Supply Chain Management
SUNMAN-BIRDEM Pharma Ltd.

It's a very good program, to be a platform to meet socially & interact each other. It will encourage me as a SCM professional to move forward.
I wish the continuous success of this forum.

Engr. Nurul Islam
Director, Apogee Engineering Ltd.

I work for total project management life-cycle. In that perspective, supply chain is one of the core task that has to be performed efficiently. To serve this performance, knowledge of SC is very much required. I am happy that TSCS is working relentlessly. I thank the team for this event.

A. M. Al-Amin
PPP Specialist, PPP Authority
Prime Minister's Office, Bangladesh

In a word, I must say excellent program. I know ASCPB very personally and it's mission and vision. The Supply Chain Street is really store of knowledge. I pray to almighty of its long journey. Thanks.

Md Jahangir Alam
Sr. Manager, RFL GROUP

Well its a good initiative if they can continue, it's a blessing for the new people who will enter into the supply chain sector. But expect they will share the value of what they feel about and how we can give a value to those. Thanks TSCS.

Shaikh Bin Mizan
Deputy Assistant Director (GBD-Commercial)
Walton Hi-Tech Industries PLC.

It was a nice meet to all SCM professionals in a single platform. Best wishes to all.

Abdul Mabud (Tushar)
Chief Business Officer
TREDX

EVENTS & ACTIVITIES

EVENTS & ACTIVITIES


SUPPLY CHAIN
STREET
Alliance of Supply Chain Professionals in Bangladesh (ASCPB)
Presents
Supply Chain
Transformation Strategy
for Sustainability
ASCPB
Organized by
Our Partners
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