

## An Analysis of Covid-19 Impact on Textile Industry-Issue, Challenges, And Prospects

Swati Aggarwal, Research Scholar (Dept. of Management), Shri Khushal Das University, Rajasthan  
Prof. Dr. Pankaj Kant Das (Management), Faculty of Commerce & Management, Shri Khushal Das University, Rajasthan

### ABSTRACT

**Background:** The challenges confronted by the textile business, including sluggish demand, decreasing production, and supply chain management interruptions. The difficulties the industry is experiencing, such as financial losses and joblessness, are also discussed.

**Aim:** The paper goals to synthesize all the challenges the fashion retail sector has faced since the COVID-19 outbreak started.

**Purpose:** The purpose of this paper provides a high-level overview of "An Analysis of COVID-19 Impact on the Textile Industry-Issue, Challenges, and Prospects." The effects of the COVID-19 epidemic and the difficulties faced by the textile sector. potential increase in demand for protective clothing and medical fabrics after the epidemic hits the textile sector. The piece also covers how technology has played a part in adjusting to new circumstances in the wake of the pandemic. Increasing product sales is a crucial business goal, and there are many ways to go about doing so effectively.

The result of the articles (1) making use of technological devices like cellphones. (2) make a convincing case for buying. The aforementioned tools allow us to run effective and engaging advertising campaigns. (3) unique approaches to selling. We need to come up with innovative approaches to sales in addition to the conventional ones we already employ. Customers will continue to observe our textile presentation tactics because of this. Videos can be sad, funny, or original; memes can be hilarious; and there are other methods as well. (4) keep selling even if you're scared. This article provides a high-level summary of how the global spread of the COVID-19 virus has affected the textile industry, as well as some of the opportunities and threats that the industry now faces.

**Keywords:** Marketing tactics, customer base size, sales volume, and textile products.

### INTRODUCTION:

In order to promote economic growth, fight poverty, and create jobs to lower high unemployment rates, the industrial sector is crucial (Agusalim, 2017). All industries will see a rise in average productivity as a result of international trade, but those increased productivity is likely if you have a comparative advantage (Setyari, 2017). Among the numerous sectors of the Indonesian economy that is expanding quickly is the textile industry. Clothing items that the Indonesian population needs can be produced in this industrial sector. This industrial sector's contribution to the national economy is substantial to the value of IDR 2,215.75 trillion, the non-oil and gas processing industry to GDP in 2014, or 6.26% of the IDR 138.76 trillion that was contributed by the textile and textile product business. This fabric and product sector are one of the industries with a high labour demand (Aprilianto to, 2018).

Without some kind of textile-related item, we couldn't survive in the current world. Even many of the objects we encounter every day are made of textiles. For instance, textiles utilized for structural purposes as well as those used in clothing, doormats, custom fabrics, and other things. Textiles have developed since there has been a local civilisation using straightforward regional textiles made of easily broken plant fibbers. In order to create fabrics that will strengthen these fibbers due to their fragility, stronger synthetic fibbers are developed. The term "textiles" refers to goods made from fibbers that are spun into filament or staple yarns and fabrics made by weaving, knitting, or belting that are afterwards used as clothing. Textiles are made by processes such as tying, sewing, and embroidering. People still frequently refer to objects as textiles or fabric (Fauzi, 2019).

Although it is recognised that the word textile originally came from the Latin word *texter*, which meaning sheet, The English word textile has been absorbed into the Indonesian word *textile*. Despite the fact that these two phrases have different meanings, modern Indonesians refer to fabric or the mind as *textile*. Although these two phrases have different meanings, *textile* can be used to describe any woven (yarn) material, whereas *cloth* refers to the finished

product, which can include clothes. The word for fabric is derived from the ancient Indonesian language for clothing or something that is worn.

Although the exact origins of human textile production are unknown, it is believed that they began. Humans in mainland Europe were still donning fur jackets at this period, but in mainland Asia coats. Modern usage of the word "textiles" refers to flexible sheet materials made of yarn spun from continuous or short fibers, they are then either pushed or not pressed into sheet-shaped fibers by weaving, knitting, or fusing glue (referred to as non-woven fabrics). Textiles can be used to make designs and clothing through a variety of methods, including embroidery, stitching, tying, and more.

Although they are now typical everyday items, textiles have always been linked to culture, power, politics, conquest, and occasionally conflicts or have served as symbols of the era's conditions of peace and prosperity. Similar to weaving, the creation of yarn from fibers is unknown in terms of when and who did it, although historical data suggests, among other things, Madonnas are shown knitting in second-century murals and that flax cultivation has been practiced in Europe before Christ. Weaved cotton designs found on a silver cup in Pakistan date to about 3,000 B.C.

Indonesia is the country with the strongest economic growth and rising purchasing power. Having the fourth-largest population in the world, China is a popular market for clothing and textiles. For market share, both domestic and foreign businesses compete. Rising prices impose pressure on domestic producers as they try to fend off outside competition, but advancements in technology, better worker skills, stronger infrastructure, a large supply of relatively cheap rupiah, and other factors favour them. The Indonesian textile and clothing industry must increase productivity is an opportunity for global companies that can provide tools, knowledge, and funds. A significant portion of Indonesia's major registered textile and apparel makers have been aggressively soliciting money on the capital market for investments in new plants.

Major garment producers in Indonesia, particularly well-known exporters like Sri Rejeki, in order to fortify themselves against rising global competition, are increasing their capital expenditures. Global companies who can offer state-of-the-art machinery and manufacturing process expertise will have enticing sales opportunities to support higher textiles with added value for industrial uses, for example. The Indonesian textile and clothing industry requires strong access to funding for equipment upgrades, but local banks either won't provide it or only offer it at exorbitant prices. Due of this, foreign enterprises have the potential to break the law. While facilitating foreign investment in what could be the world's most promising markets for the production and sale of textiles and apparel, private equity investments and joint ventures with local businesses could aid Indonesia's economy.

Making contact Talking to manufacturers and suppliers about the textiles we want to sell is the first step in launching a textile business. In order to accomplish this, we must have a thorough familiarity with the locations of significant locations that are important for the production of textiles, the size of the global textile market, the quantity of fashion design companies, etc. Jobs in the textile industry have decreased dramatically in Europe and North America over the past quarter century, while expanding rapidly in Asia and other developing nations, apparel, and footwear (TCF) industries. Currently, developing countries generate almost 60% of the world's export clothes. More than 32% of the world's textiles are now manufactured in Asia, making the region the biggest exporter.

#### **LITERATURE REVIEW:**

The theory that serves as the foundation for the study's research as well as a survey of the literature from the study's literary perspective is drawn the consequences COVID 19's effects on the textile and garment industry are examined in scholarly publications on a global scale.

Impact area	Specific impact	References
<b>Demand issues</b>	<p>The decline in textile demand</p> <p>Employees of the textile sector who were displaced due to either worker relocation or workforce reduction.</p>	<p>(Sari, 2021) ;(wulandari &amp; darma, 2020) ;(Mc Master et al.,2020) ;(leitheiser et al.,2020b) ;(risti ade putra, n.d.)</p> <p>(Daneswari,2020); mahammad, 2020); (parsetio, 2020) ;(leitheiser et al.,2020b) ;(perdagangan &amp; prima, 2015)</p>
<b>Finance issues</b>	The fashion and textile industry's financial woes.	<p>(Ivanov&amp; das ,2020); (Kumar&amp; kumari,2021); (hakovirta &amp; denuwara, 2020); (kas tertekon, 700 perusahaan tekstil sulit boyarcredit, n.d.); (ambas gagal boyarutang,writerDeepak Dari 4 indexSaham,n.d.) ;(resilience industry di tenge pandemic- faculties economic dan basins universitas bar Wijaya, n.d.).</p>
<b>Supply chain issues</b>	<p>The capacity of the textile industry has decreased as demand has fallen.</p> <p>U.S. cotton shipments to Indonesia have dropped more sharply than to any other country.</p>	<p>(Presidio,2020); (remembering: lampoon 18-person, industry tekstil dan papain tumbi paling Tinggi, n.d.); (perdagangan &amp; prima, 2015);</p> <p>(Presidio,2020); (Chowdhury et al., 2021); (Budi Basuki &amp; Bank Mandira Persero Tbk, 2016); (Yafa et al., 2020)</p>

Table 1's studies (Sari, 2021) and (Wulandari & Darma, 2020) demonstrate that MSMEs in the textile industry felt the effects of Covid-19 because their goods are typically historically sold in tourist locations. MSMEs Because it was shut down Businesses have been forced to take precautions against the pandemic as a result of its effects. to look for new ways to promote their products, with many turning to online platforms like e-commerce. Supply chain management difficulties exist in addition to marketing issues. Researchers found that during the closure, countries that import and export raw materials could not operate normally (McMaster et al., 2020);(Leitheiser et al., 2020b). China has blocked its borders to stop some importing countries from acquiring supplies of these commodities because it is the dominant force in the export basic materials for clothing. The similar issue has occurred in other nations, to the point that certain businesses have been able to maintain their safety and health (Risti Ade Putra, n.d.). Due to their crucial roles and procedures, only a limited few people, such as those who are educated about digital marketing technologies, can be hired.

In order to stop the virus from spreading, governments around the world have enacted full or partial vehicle lockdowns. This has had a big influence on suppliers' ability to meet customer delivery schedules (Ivanov & Das, 2020). Businesses purchase commodities from all around the world in today's globalized economy. Even if a company uses primary suppliers in the local area, it's almost probably tier 2 or tier 3 vendors do business abroad. Firms have experienced supply difficulties as a result of overseas suppliers abruptly ceasing operations because of regional restrictions enforced by lockdowns.

According to a different study, they hurried to produce products with high demand, like masks and personal protective equipment (Misbah et al., 2020) ;( Chakraborty & Biswas, 2021). This is carried out to preserve the business's resources and workforce. According to a study (Kumar & Kumar, 2021), the Indian government also supports textile producers by

helping them revive their textile industries by implementing a policy of retaliation refunds in international markets and offering financial support.

### Challenges of Covid-19 pandemic on textile industry

The textile industry's structure is poor. The state possesses launched particular programs to assist in easing the Covid pandemic-related conditions in the textile industry and to expand its capacity for manufacturing, advertising, and creating new jobs. The administration is trying to assess the damage done by the Covid-19 outbreak. carried out research titled "Impact of Covid-19 pandemic on Indian Silk Industry". Production issues, cocoon and raw silk costs, transportation issues, a labour shortage, sales fall in export and import demand for raw silk and finished silk goods, difficulties with working capital and cash flow, and other issues have all been faced by the industry. The table below shows the orders and supply for the preceding three months. At the height of Covid-19, jute output was falling, but things are much better now.

Month	Order	Supply by mills
June 2020	<b>2.75 bales</b>	<b>1.78 bales</b>
July 2020	<b>3.59 bales</b>	<b>2.48 bales</b>
August 2020	<b>3.52 bales</b>	<b>2.32 bales</b>

The government and the textile and clothing industries got together for a conference to discuss ways to boost exports. The Indian Embassy Abroad was given a list of potential exports to help them network with domestic companies. To make the textile industry globally competitive, the government has chosen to maintain the (RoSCTL) scheme until the (RoSCTL) (RoDTEP) scheme is implemented. For the 2020–21 fiscal years, The RoSCTL scheme's duty credit scripts have been granted an ad hoc allocation of Rs. 7398 crores by the government. In addition, the government has eliminated the anti-dumping tariff on PTA (Purified Terephthalic Acid), a key raw material used in the production of MMF fiber and yarn, in an effort to increase MMF exports. This Ministry has occasionally raised the topic of reducing the economic fallout from the COVID-19 epidemic. industry stakeholders' concerns regarding trade facilitation with the appropriate Ministries.

The Ministry of Textiles started a specific initiative to help of the (ATUFS) during COVID pandemic. In accordance with this provision, applicants have the opportunity to take advantage of their subsidies that will be delivered upon of a bank guarantee once the Joint Inspection Team (JIT) has finished physically inspecting the machinery. The regular budget allocation made available by ATUFS is used to cover subsidy release in advance subject to guarantee.

The Indian government has introduced the Aatma Nirbhar Bharat Abhiyaan, a novel economic program, in an effort to boost the nation's economy and independence. Diverse industries will receive aid from the announced relief and credit initiatives. The lock down caused by the Covid-19 outbreak has affected the businesses of weavers and artists, but they can be recovered by using these credit support and relief measures.

In addition to the to implement the aforementioned economic stimulus package, the Ministry of Textiles has actions to support handloom weavers and craftsmen nationwide: -

1. The handicraft and handloom industries have been bolstered and a broader market has been provided for handloom manufacturers thanks to efforts to onboard weavers and artisans on the Government e-Marketplace.
2. Second, a policy framework was created to make it easier for handloom products to be sold on any existing e-commerce platform. As a result, 23 online merchants have been contracted to spread the word about these handloom goods.
3. On the sixth annual National Handloom Day, the government and other interested parties launched the social media campaign Vocal4Handmade to honor India's handloom heritage and to garner public support for the textile industry. There has been a renewed interest in handlooms among Indian consumers thanks to the social media campaign, leading to increased sales of Indian handloom products at a number of online merchants.



4. In order to buy the handloom weavers' and artisans' finished inventory, the Ministry of Textiles has recommended that all State and UT Chief State Handloom Agencies, Cooperatives, and Corporations carry out the directives of their respective Ministers. The weavers will have quick access to funding for meeting urgent needs like food and shelter.

5. The unprecedented Covid-19 outbreak makes it impossible to arrange traditional marketing events like exhibits and melas, among others. To address this situation, the government works to give our weavers and handloom producers access to online marketing options.

6. The Handloom Export Promotion Council has worked to electronically connect the Handloom Weavers and Exporters from Different Corners of the Country with the International Market, taking a step towards fulfilling "AtamaNirbhay Bharat", the vision of our Hon'ble Prime Minister.

The Indian Textile Sourcing Fair, this took place on August 7, 10, and 11 and featured over 200 people from all around the country showcasing products with unique designs and talents. The international buyers have been paying close attention to the show.

7. Through NIFT, Design Resource Centers are being established in (WSCs) with the goal of developing quality in design throughout the Handloom Industry by serving as a resource for artisans, exporters, manufacturers, and designers.

8. In addition to the aforementioned activities, the Ministry of Textiles is putting different plans into place through the for the betterment of all handloom weavers and the advancement of handlooms as a whole, there are offices of Development Commissioner (Handlooms). Details of the Scheme are as follows: -

- Supporting the Growth of Handloom in India
- Plan for the Integrated Growth of Handloom Clusters
- A Full Social Security Program for Weavers of Handlooms
- Plan for Obtaining Yarn

In accordance with the aforementioned programs, funding is made available for the purchase of raw materials, the acquisition lighting units, marketing handloom items, design innovation, product diversification, infrastructure development, skill upgrading, looms and accessories, and preferential lending.

### **Textile Industry - Growth, Trends, Covid-19 Impact, And Forecasts (2022 - 2028)**

According to the type of use (clothing, industrial/technical, and household), the material (cotton, jute, silk, synthetics, and wool), the process (woven and non-woven), and the geography (North America, Europe, Asia-Pacific, Latin America, the Middle East, and Africa), the textile industry is divided into various categories. The research provides value (in US dollars) estimates and projections for aforementioned subsets of the textile market.



**SOURCE:**(MORDOR INTELLIGENCE, 2020)

### **Textile Market Analysis:**

In 2020The global spread of textile industry has been hit hard by COVID-19. Asia is one of the world's main marketplaces for textiles, but it has been hit hard by the extended lockdowns and restrictions in most Asian countries, as well as the significant reduction in international demand for their goods. Particularly hard hit were nations whose exports relied heavily on the textile industry. The International Labour Organization (ILO) found that worldwide textile commerce dropped dramatically in 2020's first half. Additionally, exports to the US, Japan, and the EU all fell by about 70%. The shortage of industry's supply chain was disrupted by fluctuations in the price of cotton and other raw materials.

The major players in the expanding textile sector are China, the European Union, the United States, and India. China is the world's largest exporter of manufactured textiles and clothing. The United States not only imports more raw textiles and clothing than any other country, but it also produces and exports more raw cotton. The European Union's textile sector accounts for about a fifth of worldwide textile output, with Germany, Spain, France, Italy, and Portugal at the forefront. India produces almost 6% of the world's textiles and has the third-largest textile manufacturing industry. The textile industry now has access to state-of-the-art production facilities thanks to the rapid industrialization occurring in both developed and emerging countries and the advancements in technology. efficient fabrics that can save waste significantly. The textile industry benefited from these factors throughout the research period, and it is expected that they will continue to do so throughout the forecast period.

### Textile Industry Segmentation

The goal of this study is to examine the textile business all around the world in great detail. Market dynamics, technological developments, and new insights are given considerable attention. into several subgroups of the market, including geographical, process, material, and application. It also takes a look at the industry's top companies and the state of competition around the world. The textile industry can be broken down into numerous sub-industries based on the end use the research provides value (in US dollars) estimates and projections for the aforementioned subsets of the textile market.

Application	technical application household application/ Clothing application industrial
Material	Jute, synthetics, wool, cotton, silk,
Process	Woven, Non-woven
Geography	Asia-pacific, Latin America, middle east & Africa, North, America, Europe.

### Textile Market Trends:

According to our research analysts, the following are the key market trends influencing the textile market:

The worldwide textile market was valued at in 2021, it will be worth USD 993.6 billion, and between 2022 and 2030, it is projected to increase at a CAGR of 4.0%. The expansion of e-commerce platforms and the growing demand for garments in the fashion industry are expected to be major growth factors for the market over the next few years. The manufacturing and retailing sectors rely heavily on elastic materials such as yarn and clothes. Production of both finished and intermediate items for the bedding, clothing, garment, medicinal, and other accessory markets relies heavily on a number of processes, including knitting, crocheting, weaving, and others.

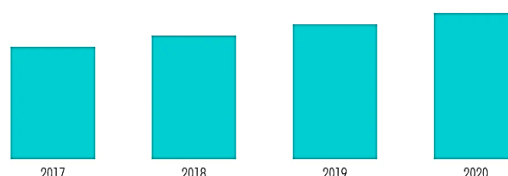
### Increasing Demand for Natural Fibbers

Because of their superior strength and low weight in comparison to traditional fibbers, natural fibber composites find widespread use in the automobile industry. Plant and animal sources are used to create natural fibers such as cotton, silk, linen, wool, hemp, jute, and cashmere. These polymers are utilized in a wide variety of products, including clothing, accessories, construction materials, pharmaceuticals, and automotive upholstery. The global textile industry has benefited greatly from the availability of natural fibers, particularly cotton, in countries like china, india, and the united states. Since there are both fine and coarse varieties of silk, it can be utilized for a variety of purposes, including upholstery and clothing. The use of wool and jute in textiles because of their resilience, flexibility, and softness. During the forecast period, increased demand for natural global textile industry.

INTELLIGENCE,  
**Shifting Focus  
 Fabrics.**

Baby diapers,  
 Volume-1

Natural Fiber Production, in Million Metric Tons, 2017-2020

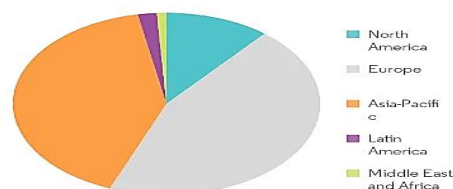


**SOURCE:(MORDOR  
 2020)  
 Toward Non-Woven**

tampons, and adult

incontinence products are in higher demand due to the growing number of babies and elderly people. It is also anticipated that these two factors will fuel an increase in the demand for non-woven materials. To make roads more durable, nonwovens called geotextiles are utilized in road construction. Nonwovens' low maintenance costs might increase demand for them in construction-related applications. Over the coming years, the non-woven fabric market is anticipated to increase due to the optimistic prognosis for the global car and transportation industries. Due to their endurance, non-woven fabrics are used to make numerous exterior and interior parts in the automotive industry. Other reasons driving the market for non-woven fabrics globally include rapid industrialization and recent advancements in textile technology.

Non-woven Fabric Exports Shares by Geography, 2020



**SOURCE:**(MORDOR INTELLIGENCE, 2020)

### Textile Industry Overview

Companies in the textile industry are included in the study's scope. Due to intense rivalry and market fragmentation, global textile companies do not control a large share of the industry.

#### Textile Market Leaders.

1. Toray industries inc.	
2. B.C. corporation	
3. Inditex SA	8
4. Company Limited by Shares of the Shandong Weiqiao Pioneering Group	
5. Nissinbo holdings inc.	0

Market Concentration



**SOURCE:**(MORDOR INTELLIGENCE, 2020)

### Textile Market News

- In February of 2021, the Indian government announced plans to construct seven large textile parks over the course of three years. Caprolactam, nylon chips, nylon fiber, and nylon yarn now only face a 5% customs duty, down from a previous rate of 10%. an initiative to harmonise tariffs on synthetic textile inputs.
- The garment, textile, and footwear industries, as well as other sectors related to assembly operations, will primarily profit from the USD 1.1 million investment in manufacturing that the Paraguayan Ministry of Industry and Commerce has made public plans to happen in February 2021.

### CONCLUSION

The researcher can develop judgements about the company in light of the findings of the audit. Despite the spread of the COVID-19 pandemic, there are still many opportunities for enterprises to increase their textile sales. One such way is through the implementation of a strategic marketing plan. Our research shows that Wulan Busana, Toko Nyoman, and Lala Moda all have room to (improve upon their currently implemented marketing plans) and methods. The (promotion marketing approach) is a step up in quality. The plan at issue involves the (implementation of modern tools), such as smartphones. Because full moon and mat ceremonies are still practised in modern households, business players need to execute marketing tactics for textile items through the widespread adoption of smartphone technology and internet sales. This has a positive effect because it makes it more difficult for companies to avoid advertising on mobile devices.

### References:

1. Agusalim, L. (2017). Indonesia Agro-industry Growth Acceleration through Export Tax Policy: CGE Comparative Static Model. Journal of Applied Quantitative Economics.

2. Apriliyanto, M. R., & Rusdarti, R. (2018). Analysis of Labour Absorption in the Textile and Textile Product Industry in Central Java Province. *Economics Development Analysis Journal*, 7(4), 374-383.
3. Central Bureau of Statistics. (2015). <http://bps.go.id>
4. Debora, L., & Susanto, E. H. (2020). Marketing Strategy in the Form of Promotion of Consumer Purchase Interest. Descriptive Study: CGV Cinemas – Central Park. *Journal of Business Management and Entrepreneurship*, 4(1), 08-13.
5. Fauzi, I. G., Ananda, R., Gultom, M. D. P., & Sari, I.N. (2019). Soap Industry.
6. Hamel & Prahalad. (1995). "Management. New Delhi: Tata McGraw Hill".
7. Hamidi, D., & Si, M. (2007). Research methods and communication theory. Practical Approach to Writing.
8. Hakovirta, M., Denuwara, N., (2020). How COVID-19 redefines the concept of sustainability. *Sustainability* 12, 3727. <https://doi.org/10.3390/su12093727>.
9. Kaplan, R.S., Robert, N.P.D. K.S., Kaplan, R.S., & Norton, D.P. (2001). The strategy-focused organization: How balanced scorecard companies thrive in the new business environment. Harvard Business Press.
10. Kumar, V., & Kumar, S. (2021). Impact of Covid-19 on Textile and Fashion Industry India: Impact of Covid-19 on Textile and Fashion Industry India: Economic Perspective. February.
11. Kas Tertian, 700 Perusahaan Tekstil Sulit Bayar Credit. (n.d.).
12. Philip, K. Kevin Keller (2012) *Marketing Management*, 14e New Jersey.
13. Setyari, N.P.W. (2017). Productivity Trends of Indonesian Export Products Industry. *Journal of Applied Quantitative Economics*, 1(2), 1-20.
14. Stephanie, K.M. (2002). *Strategic Management Research Design*.
15. Sari, R. N. (2021). Dampak Pandemi Covid-19 Terhadap Umkm Batik Di Kabupaten Sumenep. *RISTANSI: Riset Akuntansi*, 1(1), 45–53. <https://doi.org/10.32815/ristansi.v1i1.347>
16. Wangsa, P., & Kristianti, R. A. (2019). The Effect of Business Coordination, Strategic Integration, Market Orientation, and Product Innovation on Marketing Performance at Bombay Textile Indonesia Stores. *Journal of Business Management and Entrepreneurship*, 3
17. Wulandari, N. L. P. T., & Darma, G. S. (2020). Textile Industry Issue in Pandemic of Covid-19. *Pal Arch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 8064–8074.
18. McMaster, M., Nettleton, C., Tom, C., Xu, B., Cao, C., & Qiao, P. (2020). Risk Management: Rethinking Fashion Supply Chain Management for Multinational Corporations in Light of the COVID-19 Outbreak. *Journal of Risk and Financial Management*, 13(8), 173. <https://doi.org/10.3390/jrfm13080173>.
19. Leitheiser, E., Hossain, S. N., Sen, S., Tasnim, G., Moon, J., Knudsen, J. S., & Rahman, S. (2020b). Early impacts of coronavirus on Bangladesh apparel supply chains. April, 25.
20. Ivanov, D., (2020). Predicting the impacts of epidemic outbreaks on global supply chains: a simulation-based analysis on the coronavirus outbreak (COVID-19/SARS- CoV-2) case. *Transp. Res. Part E Logist. Transp. Rev.* 136, 101922 <https://doi.org/10.1016/j.tre.2020.101922>