Covid 19
Impact on BTG's Supply Chain: Challenges, Mitigations and Opportunities

Shachar Gamliel
April 2022

BTG
Bio-Technology General (Israel) Ltd.
A FERRING COMPANY

BTG (Bio Technology General LTD)

Pioneering Development and Manufacture of Human Health Care Products

Founded in 1980 by Professor Haim Aviv and colleagues from the Weizmann Institute of Science

In 2005, BTG was sold to Ferring Pharmaceuticals

- BTG operates a 10,000 sqm cGMP manufacturing facility
- Provide unique CMO services
- Approved by regulatory bodies worldwide

Founded in 1980 | **>300 Employees** | **A Ferring company** | **Development** | **Manufacturing** | **Main Products**

Develops cGMP:
- Manufacturing processes
- Analytical methodology

for both bacterially-derived and mammalian cell culture-based recombinant proteins

Rekovelle ®
Treatment of infertility

Somatropin®
Recombinant Human Growth Hormone (Somatropin)

EUFLEXXA®
Injected into the knees to improve movement and reduce pain

Biolon®
Injectable system used in cataract and other ophthalmic surgery

BTG
A FERRING COMPANY

BTG's Supply chain

Supply-chain management is the integration of all the activities that Plan manufacturing, procure materials and services, transform them into intermediate goods and the final product, and deliver them to customers

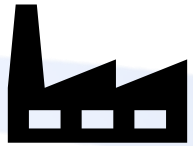
Planning	Procurement	Logistics
		

BTG
A FERRING COMPANY

Supply chain (high level) flow & Covid19 challenges

Planning

Procurement

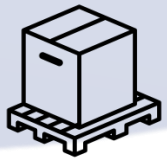


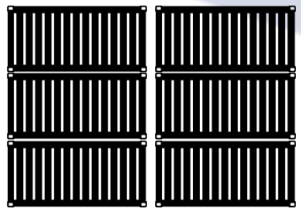
Supplier / Manufacturer

Customs + Port storage

Cargo release Delays in Israel (driven by Maman, Swissport and employees shortage (COVID-19))

BTG manufacturing





Truck drivers shortage (e.g. Brexit)

Unloading containers delays Global "traffic jam" in ports

Shipping routes are changing. special containers Shortage

Market

Struggle on raw materials & safety stocks leads to demand increase

Global containers Shortage due to high dammed

BTG
A FERRING COMPANY

IT IS EVEN MORE CHALLENGING YET MORE CRITICAL TO SECURE SUPPY

Few examples for items / materials shortage

Single use bags

Bioprocessing equipment

Personal protective equipment

Being used in the CR environment – extreme shortage during the beginning of the Covid19

Membranes / Filters

Being used for removal of particulates and microorganisms

Biopharma process Resin

Being used for BioProcess chromatography

Silicon tube

Tubing assemblies are critical for transfers between single-use systems

Tyvek paper roll

Being used for packaging process

BTG
A FERRING COMPANY

Main challenges

Secure supply

Price increase

Team Members

Logistics

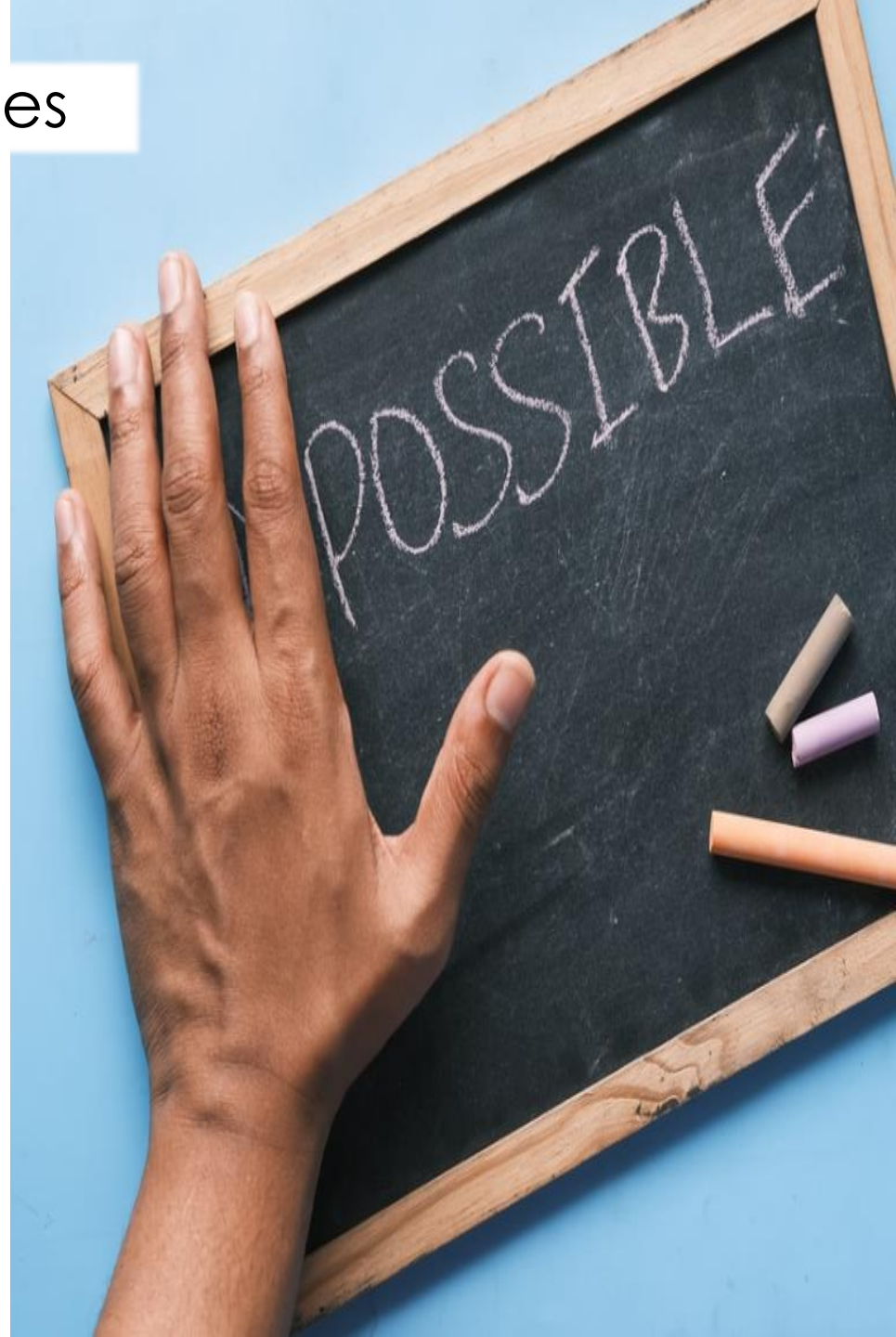
BTG
A FERRING COMPANY

Need to improve

- To **avoid / reduce dependency on customized items** make all efforts to use "on the shelf" products
- Make sure **suppliers** have **excellent control process in place**
- To **improve Internal POs management & control**
- Improve PO initiation based on **solid Lead time & Inventory management** (especially MinMax)
- **Inter company data transfer**
- **Forecast as a tool**
- Transfer from "fire fighting" mode to **proactive initiatives**
- Networking.

Upsides & Opportunities

- **Great personal relationship** – truly **contribute** during crises management
- The crises **"put to the test"** everyone
- We **improved the management** & control over critical items
- Organization **flexibility** and managerial attention sharply improved
- We **supported other** pharmaceuticals companies in Israel and **received their support back**
- We **improved the collaboration** with **Ferring global procurement**
- The crises emphasized **the importance of long term thinking** in order **to reduce operational risks.**



Thank You!

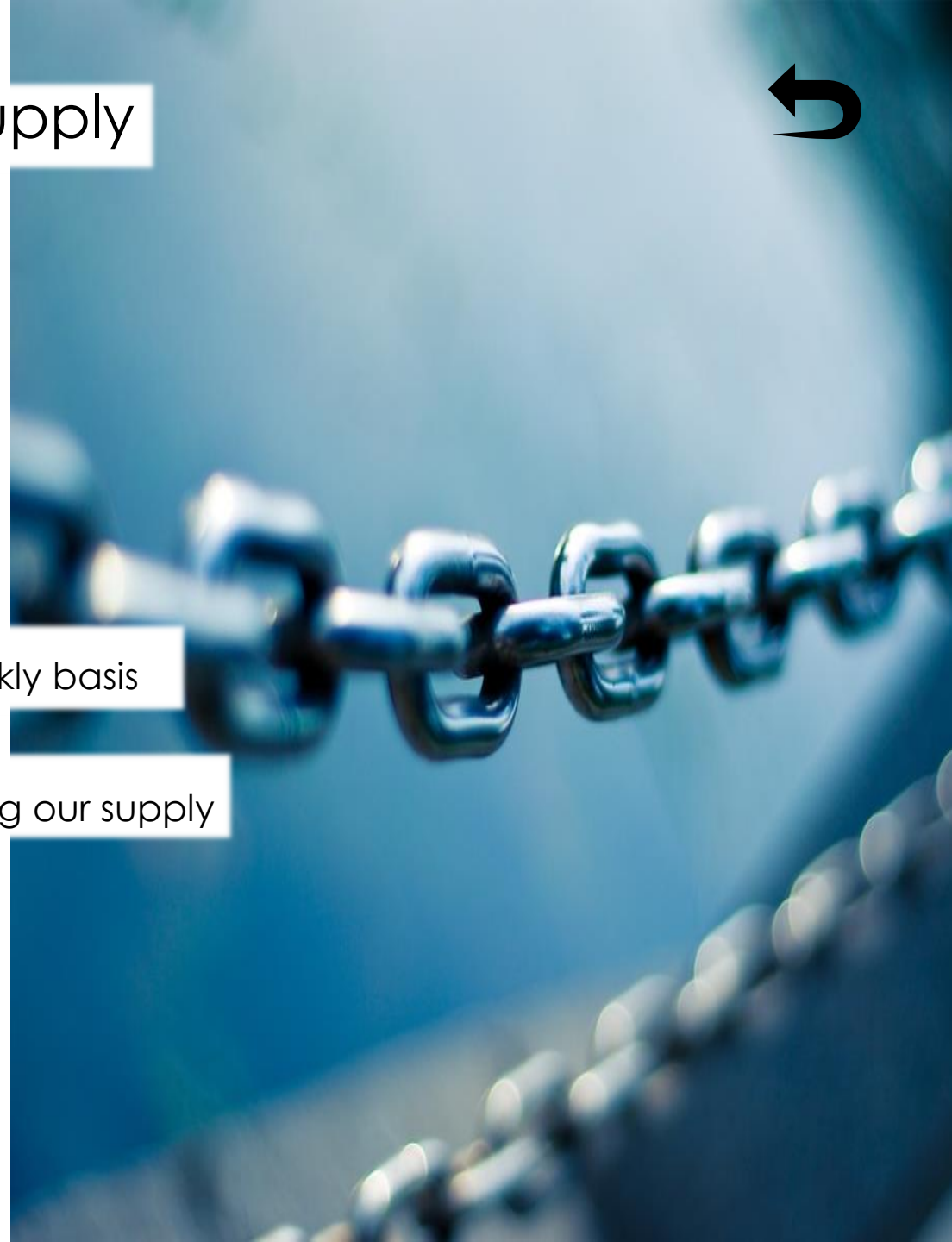
Secure supply

The challenge:

- Suppliers / Manufacturers **extreme Lead time extension**
- Promise dates **push outs**
- Suppliers / Manufacturers **Inability to supply**
- In a lot of cases - We are dealing with **distributers**
- In few cases -**Low level** of Service
- Custom made and **Single source** supplier dependency

What we did/ still doing:

- Great **Communication** and personal relationship
- Assignment of a multidiscipline **Task-force** to monitor risks on a weekly basis
- **POs control**
- **Weekly meetings** with suppliers / manufacturer that are jeopardizing our supply
- Senior management **escalation**
- **Inventory buildup**
- Sourcing & qualifying an **alternate suppliers/ items**
- **Support** from and to **other pharma companies**
- Support from **global procurement** and other Ferring sites
- **Creative solutions** by local TMs.



FROM STAINLESS STEEL TO SINGLE USE AND BACK TO STAINLESS STEEL

- Few years ago it was decided to adopt the Single-use systems in some of BTG's product lines
- Single-use systems (SUS) refers to bioprocessing equipment designed to be used once (or for a single manufacturing campaign) and then discarded
- The primary **benefits** of SUS VS. classic stainless steel:
  1. Sterile equipment - allowing avoidance of cleaning, sterilization and sterilization validation
  2. Avoidance of complex steam, WFI, and other plumbing installation
  3. SUS equipment is relatedly "plug-and-play"
  4. Economic value in **some cases.**

BTG
A FERRING COMPANY

FROM STAINLESS STEEL TO SINGLE USE AND BACK TO STAINLESS STEEL

- Driven by the Covid19 vaccination development and manufacturing – the usage of SUS by the biggest manufacturers in the industry sharply increased and led to a massive shortage in SUS supply
- In order to create a short term solution to one of our key product– a joined effort by BTG's Eng,MFG,Dev,Quality,RA and others enable the re use of an existing 1,100L stainless steel vessel to be used instead of the SUS
- This effort prevent BTG from manufacturing shutdown
- This solution will remain operational along with the ability to use SUS.

BTG
A FERRING COMPANY

Price increase

The challenge:

- Sharp price increase in all segments
- **Unstable** price lists (frequent changes)
- Taking advantage of the situation**?**

What we did/ still doing:

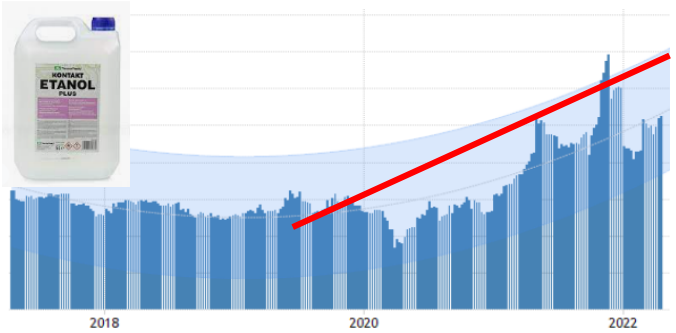
- **Nego** -even when it seems like a "lost fight"
- Focus on "**significant item**" (not 100% of the items)
- **Benchmark** – to validate prices increase VS. relevant index
- We used the **Ferring network** in order to compare relevant segments and suppliers
- Moderated price list ("**economy of scale**")
- Make sure your supplier is satisfied (but not too much).

BTG
A FERRING COMPANY

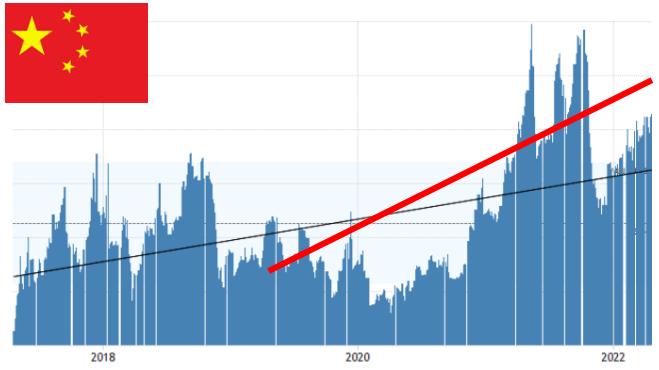
PRICES INDEX (FEW EXAMPLES)

Natural Gas futures[1]

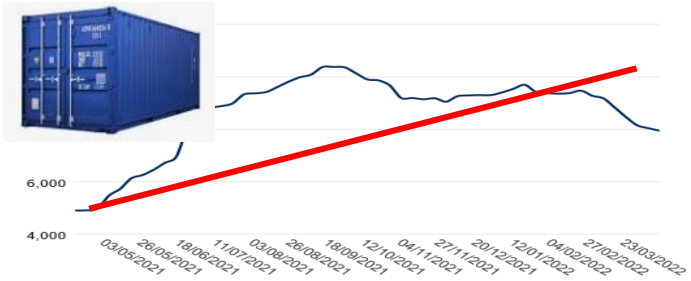
Ethanol USD/GAL[2]



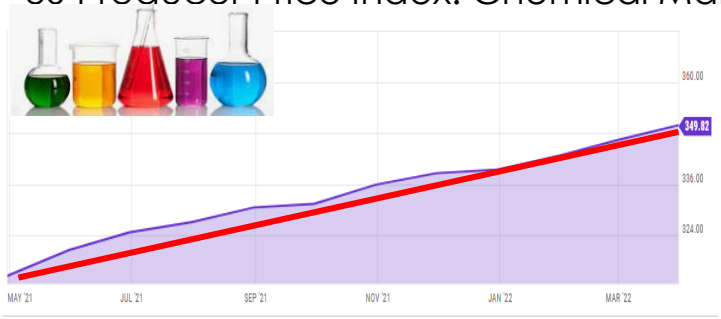
Producer Prices in China[3]



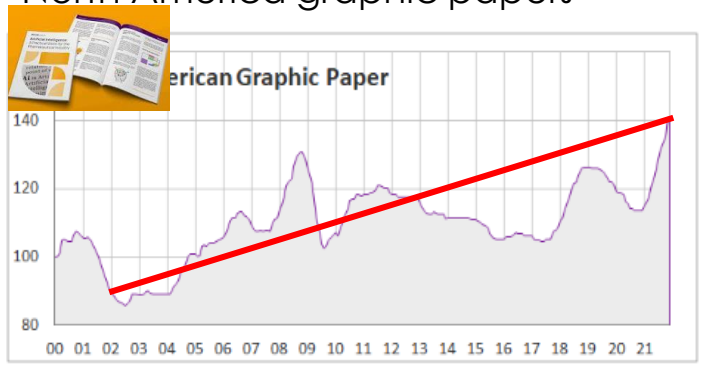
World Container Index (US$/40ft)[5]



US Producer Price Index: Chemical Manufaturing[5]



North America graphic paper[6]



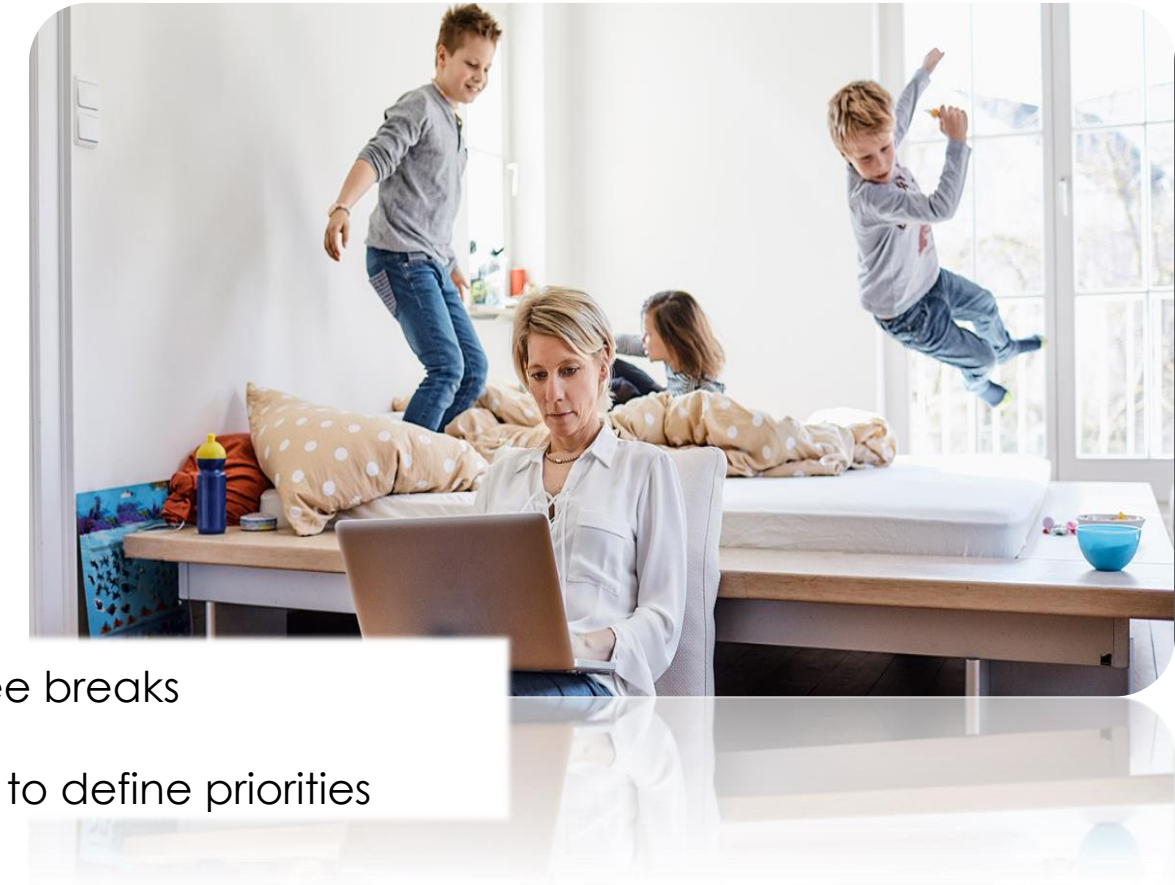
1. https://tradingeconomics.com/commodity/natural-gas
2. https://tradingeconomics.com/commodity/ethanol
3. https://tradingeconomics.com/commodity/steel
4. https://www.drewry.co.uk/supply-chain-advisors/world-container-index-weekly-update/world-container-index-assessed-by-drewry
5. US Producer Price Index: Chemical Manufacturing (ycharts.com)
6. https://www.risiinfo.com/

BTG
A FERRING COMPANY

Team members “worn out”

The challenge:

- “Fire fighting” mode over the last 2 years
- Stressful environment
- Sick leave & isolation leads to TMs shortage
- Working from home – with children around can lead to ….



What we did/ still doing:

- When possible – meet outside , Welfare activities , on-line coffee breaks
- Management - Reduce non urgent activities & daily meetings to define priorities
- TMs Recognition – extremely important.

BTG
A FERRING COMPANY

Logistics

The challenge:

- Sea transportation difficulties
- Higher shipping costs
- Difficulty to order special containers

What we did/ still doing

- Shifting from sea transportation to Air
- Qualify addition shipping lanes
- Early reservation of shipments
- Shipment coordination flexibility, to reduce costs.