Global supply chain trends and the impact of COVID-19

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Before Covid-19: Global Supply Chain transformation was already underway as key technology trends converge

- **IoT devices & machine intelligence** drive new insights toward end to end visibility
- **Digital ecosystems** facilitate access to **digital twins** at points of need
- **DLT & confidential computing** enable **trust** among layers of **counterparties**
- **Parametric insurance & resilience/risk-mgt-as-a-service** create new ways to close the insurance protection gap
Several industry-level digitization efforts indicate the evolution of industry platforms into open market digital ecosystems.

**Maritime Supply Chain**
DLT initiative led by Maersk & IBM aimed at digitizing the marine trade supply chain.

**Automotive Supply Chain**
Global alliance of automotive manufacturers, dealers & mobility service providers to simplify & standardize services across the auto supply-chain.

**Agri-Business Supply Chain**
IBM industry platform solution to improve transparency and accountability in the food supply chain.

**Trade Finance**
DLT powered commodity trade financing platform bringing speed, trust, security and cost savings in the post trade processing.

Digitizing the workflow in theses industry verticals creates data at scale & marketplaces with critical mass. The result is business model innovation opportunities for several service industries including insurance.

Supply Risks
- Supply-chain unpredictability is a business continuity risk, and arises due to high degree of specializations & separation between tiers of suppliers.

Operational risks

Network risks
- Failure of transportation and communication networks restrict access to information, people, and assets. These risks increase with length and complexity of the supply-chain.

Financial risks
- Financial risks are related to the probable interruption in the flow of financial resources like credit, working capital, lending, banking services etc. between urban areas and other business centers.

Non-systemic risks

Systemic Risks
- Epidemic and pandemic risks can cause regional to worldwide interruptions to the flow of goods. The cause for the shock can either be on the supply and/or on the demand side.

Cyber risks
- Internet vigilantism, cyber risks and algorithmic risk (biases and errors in algorithms) are prominent emerging risks with financial consequences for supply chain actors.
Covid-19 brought unprecedented challenges across verticals redefining Next Gen Supply Chain resilience.

**Maritime Supply Chain:**
*Cargo at Rest and at Risk*

Cargo has been steadily building up in warehouses, port terminals, and inland depots during the lockdown as factories have shut down production.

**Airfreight Supply Chain:**
*Spiking demand*

As countries run out of critical medical supplies the demand for airfreight spiked. Year over year airfreight prices out of China are up 253%.

**Agri-Business Supply Chain:**
*Food demand-supply mismatch*

U.S. has two distinct food supply chains: one for grocery stores and one for the food service industry. Covid-19 forced the latter to close. Farmers are forced to dump milk and let fresh vegetables rot even as more Americans face food insecurity.
Post Covid-19 Supply Chain: Demand for resilience & risk transfer solutions is expected to rise

Monitoring tier dependencies
- OEMs will engage with n-tier suppliers to monitor exact sources of every material. Additional sources for important supplies will need to be found to mitigate supply chain risks.

Geographical diversification
- Localization vs Globalization debate has entered into a new era
- Reducing heavy dependencies on one geography for supplies is a key priority for CxOs

Insurance at the point of need
- New risk awareness will lead to demand for new insurance products. Coverages could be parametric & include:
  - Delay protection
  - Transit interruption protection
  - Political risk protection

Supplier diversification
- Avoid reliance on single source suppliers
Parametric insurance & supply chain insurance will surge in demand

- **Parametric insurance** will become more appealing for evolving risks and can address the demand for more contactless interactions post Covid-19.

- In the dramatically changing global business environment, greater supply chain uncertainties creates the need for supply chain insurance solutions.

- **Example**: Swiss Re Corporate Solutions crafts innovative parametric NatCat solutions to address supply chain risk for clients. In 2019, Swiss Re Corporate Solutions expanded its Innovative Risk Solutions offering by launching FLOW, parametric water-level insurance. The new index-based product is designed to protect companies in Europe from the financial impact of high or low river water levels, such as lost revenue due to business interruption or increased costs due risk mitigation measures.

> Source: Swiss Re Institute
Countries have different policy measures in pandemic containment, which creates divergence in economic & social results between advanced & emerging markets, and the East & West.

Prior to the pandemic, there were already signs that globalization had peaked due to the developing US-China trade war, rising global nationalism & populism.

US-China trade war has no end in sight and is escalating. While decoupling the two countries is difficult, partial retreat from global value chains is a negative-sum game.

Pandemic will accelerate parallel supply chains; more industries will relocate out of China, decreasing global cooperation and increasing regional cooperation.

Strategic (high-tech) and national security productions (health and medical related production) will become more domestically concentrated.

Increasing global segmentation creates more challenges where technology may be best suited to address.

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Appendix
Internet of Things (IoT)

• IoT is where the physical world meets the digital world and cooperate. By means of low-cost computing, the cloud, big data, analytics, and mobile technologies, physical things can share and collect data with minimal human intervention.

• IoT applications are prebuilt software-as-a-service (SaaS) applications that can analyze and present big data to users. IoT applications use machine learning algorithms to analyze massive amounts of connected sensor data in the cloud.

• Business value can be unlocked with IoT. As IoT becomes more widespread in the marketplace, companies are capitalizing on the tremendous business value it can offer. These benefits include: deriving data-driven insights from IoT data to help better manage the business, increasing productivity and efficiency of business operations, creating new business models and revenue streams, easily and seamlessly connecting the physical business world to the digital world to drive quick time to value.

• Almost all industries can benefit from IoT, including manufacturing, automotive, finance and insurance, transportation and logistics, retail, public sector, healthcare and many more.
Distributed ledger technology (DTL): potentials and trends

• DTLs can be incorporated into new platforms and networks, including insurance digital network.

• **DTLs as efficient way of store and share large amount of data**: DLTs can be in the form of a distributed cryptocurrency or they may be the architecture on which private or public data is stored or shared.

• **DTLs can be applied to different business problems** and dramatically improve the sharing of information, provide new tools to reduce fraud, error and the cost of paper intensive processes, provide new ways of assuring ownership and provenance for goods and IPs.

• **DTLs has the potential to transform the delivery of public and private services**, redefine the relationship between government and the citizen in terms of data sharing, transparency and trust and make a leading contribution to the economy digital transformation plan.
Confidential computing

- Confidential computing adds new data security capabilities to the cloud and specifically to machine intelligence processing.

- **Major paradigm shift for data security in the cloud.** Global tech giants, cloud infrastructure organizations have formed the Confidential Computing Consortium (CCC), including Alibaba, ARM, Baidu, IBM, Intel, Google, Microsoft, Red Hat, Swisscom and Tencent.

- **Confidential computing and intelligence exhibited by machines, has many applications.** Programs are developed to perform specific tasks and a wide range of activities including medical diagnosis, electronic trading platforms, robot control, and remote sensing. AI has been used to develop and advance numerous fields and industries, including finance (insurance market), healthcare, education, transportation, and more.

Confidential Computing Consortium (CCC) consists of all major tech giants

Source: Confidential Computing Consortium (CCC) website
Case study Agri-business Supply Chain: COVID-19 disruptions along the supply chain are amplifying the need for supply chain transparency and resilience

Disruptions along the agri-business supply chain

- Sustainability
- Digitization
- Global trade
- Food regulations
- Climate change
- COVID-19

Agri-business Supply Chain navigator
(Swiss Re-IBM joint undertaking)

Swiss Re
- Agri-business risk knowledge
- Resilience solutions
- Innovation & Digital insurance capabilities

IBM
- Agri-business cross-industry platforms
- Open agri-business IIoT platform
- Enterprise blockchains

Jointly shape the future of agri-business supply chains, i.e., horizontal, integrated, cross-industry and data-driven.