MIND your business

Institute for Catastrophic Loss Reduction
Building resilient communities

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SPECIAL BUSINESS RESILIENCE SERIES

Severe weather events and climate change: Contingent business interruption and interdependencies

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Understanding how Contingent Business Interruption (CBI) insurance coverage plays a role in protecting your business revenue and how company interdependencies can cause unforeseen cascading losses.

In the first *Mind your business Special Business Resilience Series* bulletin (Business Interruption, April 2023), we explored the impact of severe weather events and how to better understand Business Interruption (BI) insurance exposure and protect your revenue. Part two of this series will explore Contingent Business Interruption (CBI) and interdependencies, the nuances that can be found in CBI policies, insurance coverage, and cascading loss potential.

When looking at your organization's full value chain, CBI coverage and interdependencies can intertwine with standard BI exposures and possible coverage; however, there are key points that can have an impact on a CBI policy being invoked as well as interdependencies impacting more than just the location with an insurable loss. Both CBI exposures and interdependencies should be part of a robust Business Impact Analysis (BIA) and feed into a well-developed Business Continuity Plan (BCP).

Like Business interruption (BI) insurance, CBI insurance does not always cover revenue loss and, therefore, having strong knowledge of your risks, procedures to reduce those risks, and a robust recovery plan are the best actions you can take to protect your value chain.

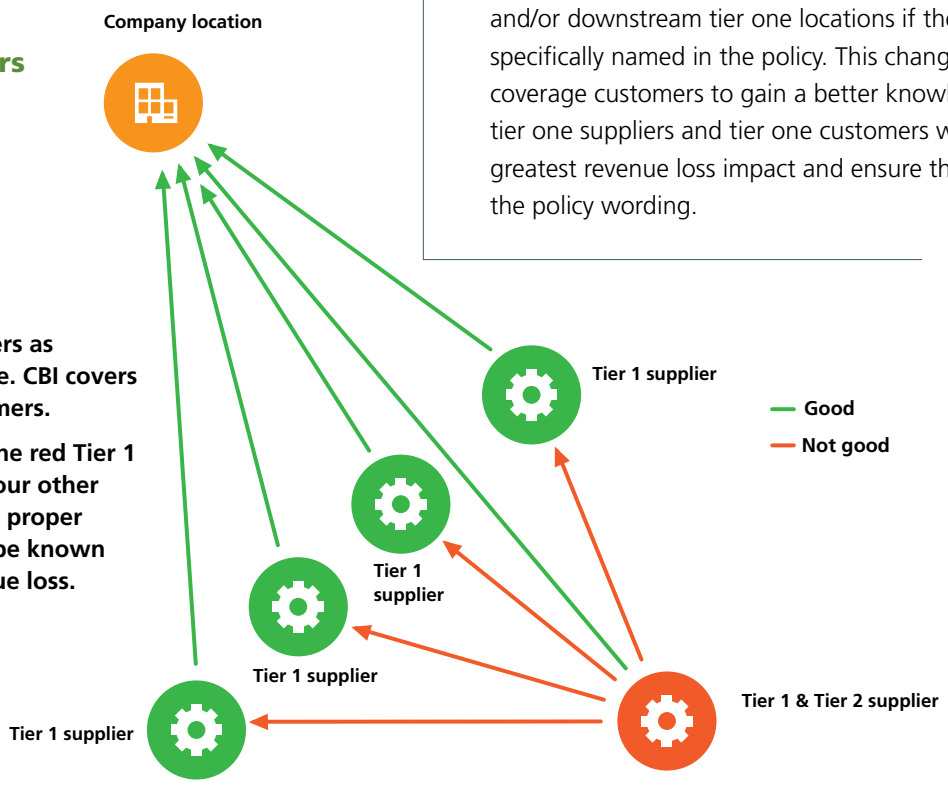
Important points about BI insurance

- A CBI insurance policy is a complement to a traditional BI insurance policy. It is typically an add-on coverage and would generally follow the same indemnity period and type as the BI policy. One difference between a CBI policy and a BI policy is that a CBI policy deals with insurable losses that are external to your company's organization, but that can still have an impact on your business revenue.
- CBI policies extend to the first tier upstream and/or first tier downstream from your organization. In the recent past, CBI policies have adapted to the risk market. Previously, CBI coverage was somewhat expansive, covering unnamed external suppliers and customers. Due to several natural hazard and extreme weather events, the coverage began to shift, requiring the CBI coverage to only extend to upstream and/or downstream tier one locations if they were specifically named in the policy. This change required CBI coverage customers to gain a better knowledge of which tier one suppliers and tier one customers would have the greatest revenue loss impact and ensure they are named in the policy wording.

Transparency in the supply tiers (suppliers and customers) is important to understand where potential CBI losses could occur.

Always know your suppliers as many tiers back as possible. CBI covers Tier 1 suppliers and customers.

In this diagram, a loss to the red Tier 1 supplier also impacts all your other Tier 1 suppliers. Without a proper assessment, this may not be known and cause a serious revenue loss.



Lean, Robust and Agile Supply Chains and associated risks

A '*Lean Supply Chain*' can be defined as one that delivers its products or services to customers, end-to-end, in an efficient way with minimal waste (time and cost). Lean supply chains generally have low costs but can experience higher than manageable risk potential and severity, such as having a single node supply line that could impact the entire supply chain if disrupted. High risk/low cost.

A '*Robust Supply Chain*' is generally a supply line that has gone through a strong risk management process and utilizes capital investment to reduce the risk of loss to a minimal point as well as the severity of a loss. High cost/low risk

An '*Agile Supply Chain*' focuses on the ability to pivot quickly in the event of an interruption to a specific node. Agile supply chains can also be lean, but investment has been made to secure quick alternatives to minimize any severity of a loss. This style of supply chain is normally well-balanced between being lean and robust. Balanced cost and risk.

- Another recent impact on CBI coverage has come from the reinsurance market. It is not uncommon for front line insurance carriers to use reinsurance (commonly facultative) to achieve the required/requested coverage amount and structure for the customer. With recent market losses, reinsurers have required more detailed risk information about the named locations for CBI coverage prior to releasing the requested reinsurance capacity. This can effectively translate to customers receiving, as an example, $300 million in CBI coverage for named locations to under $150 million in CBI coverage until such time as the main carrier and reinsurer are able to conduct an in-depth risk assessment. This can effectively change a company's approach to risk reduction as their risk transfer piece has been reduced.
- As noted, CBI coverage still requires physical damage from an insurable loss at the named CBI location(s). In the event that there is no physical damage from an insurable event at the named CBI location, the CBI coverage would not be activated. When thinking of severe weather, flood is a typical hazard that can cause an interruption to transportation routes, but may not impact the tier one suppliers' or tier one customers' location(s). Some insurance carriers have begun to adapt to the market and develop more of a hybrid CBI coverage product that extends beyond the traditional CBI policy, but typically requires an intense risk assessment and added premium costs to offset the higher risk of loss.

Important points about interdependencies

- Interdependencies exist within an organization that has multiple locations where one location may feed supplies to another location. Generally, this is not uncommon for multi-location manufacturing companies, like auto, aerospace, appliances, etc.. While each individual location would fall under traditional BI coverage, when assessing risk exposure, interdependencies should be considered as part of a value chain and understood and assessed similar to either CBI exposures or supply chain exposures.
- The more integrated the company interdependencies, the higher the likelihood and impact of a single loss causing cascading or stacking impacts. With a loss at a key internal location that feeds supplies to other internal locations, the BI loss can start with the original loss location but also have the other dependent locations have a BI loss, which increases the entire company's BI loss amount. Understanding all the organization's interdependencies is key to avoiding and/or adapting quickly to prevent cascading/stacking losses.
- Some industries are established to report the BI income at the retail location, but the main loss exposure could be at a central distribution hub, and has no BI value reported. It is therefore important to work with a broker and/or carrier to best structure where the BI value should be placed and in what amount. As an example, it is not uncommon for a company that has retail locations regionally or nationally to report the BI value based on the sales revenue from the retail locations. With lean supply chains, that company may have several regional distribution hubs that feed many retail locations. Therefore, a loss at the distribution hub will cause a loss at several retail locations with their loss to revenue stacking to a total BI amount. If the company is not aware of this exposure and/or has not developed a plan to ensure the retail locations still receive stock, the BI loss may be well beyond what was expected.

Like your individual BI exposure, know your CBI and interdependency critical infrastructure and how it is protected.

As noted in the *Mind your business: Business Interruption* bulletin, insurance carriers will want to ensure you understand the various risks facing your business. This still includes the individual locations infrastructure, but for CBI and interdependencies there are additional critical risk exposures that need to be discovered, understood and mitigated.

- ☐ For your critical tier one suppliers and their CBI exposure, do you have an understanding of their current spare capacity?

Are you aware of their competitors and their spare capacity? If one of your critical suppliers has a loss event, knowing your ability to secure added capacity from that supplier or one of their competitors will be integral to having a smaller or even no CBI loss. With globalization and lean manufacturing, it is not uncommon for suppliers to be working at near capacity and therefore secondary locations are not always able to make up lost supply capacity.
In addition, if your competitors are more in tune with their alternatives due to a shared supplier loss, they may secure the spare supply before you, leaving your organization without key supplies to fulfill production.

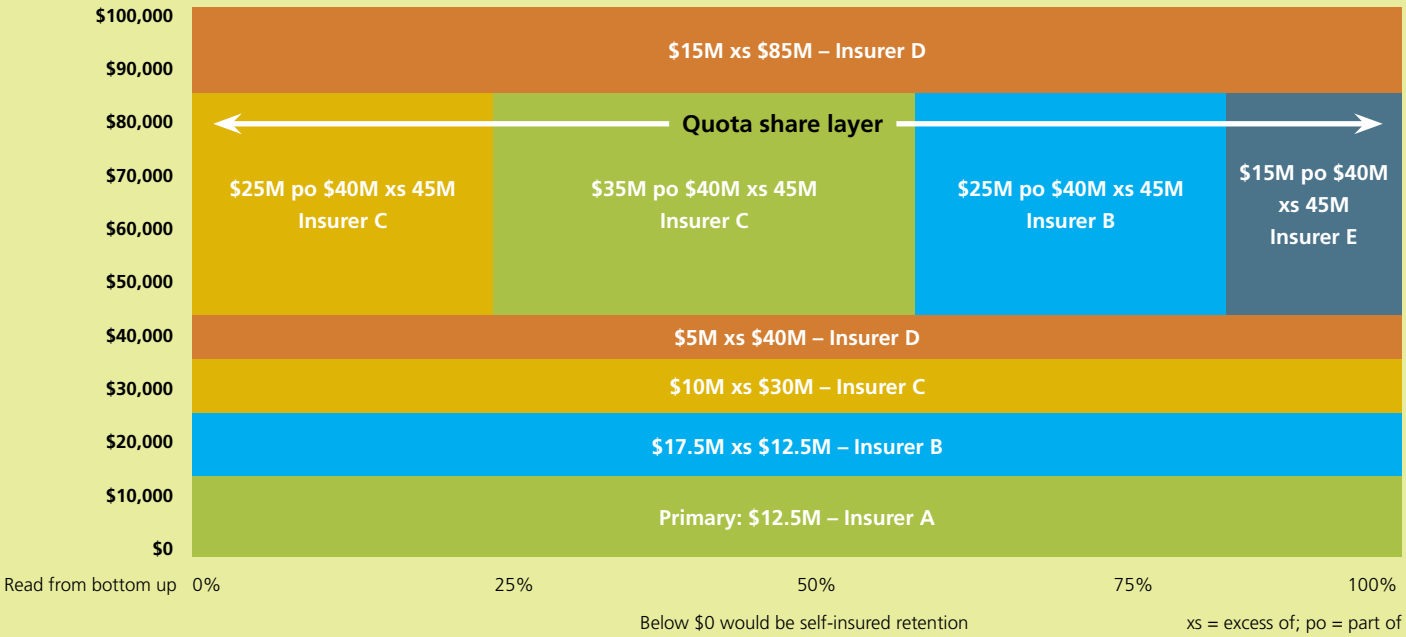
Clustering, Capacity and Layering

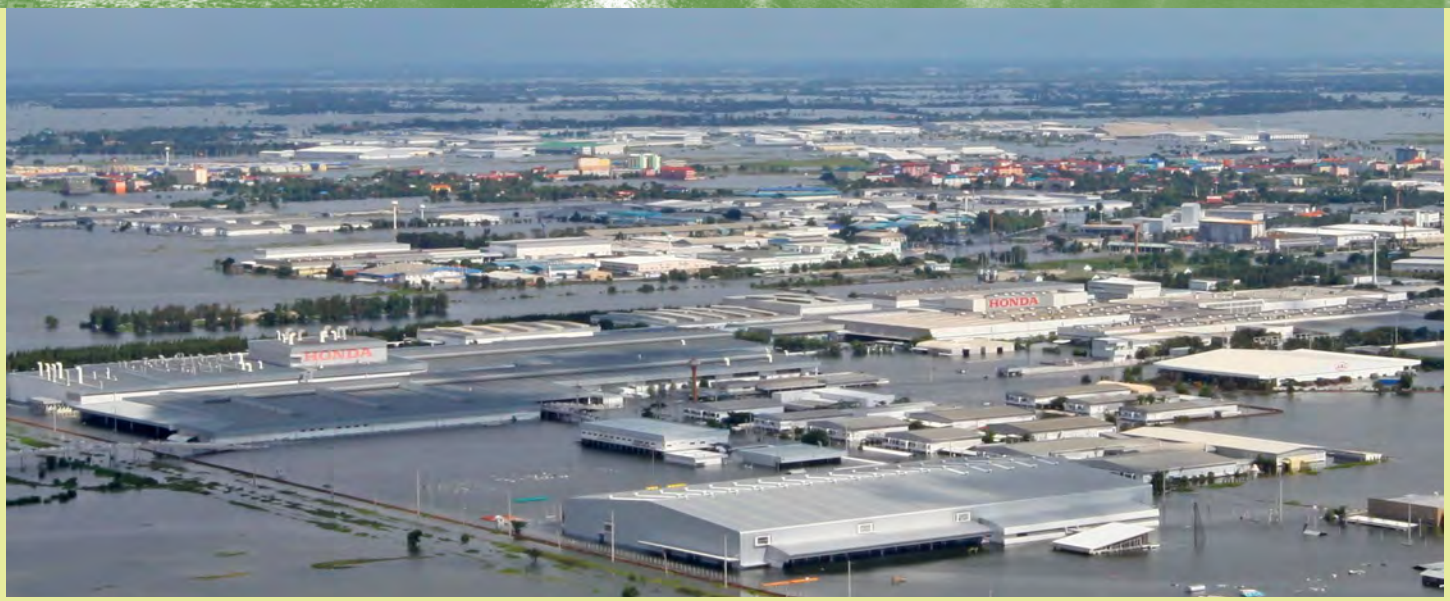
Clustering refers to the amount of coverage an insurance carrier can manage in a given geographical area for specific loss events. For example, due to the size of wildfire and flood events, it is not uncommon for an insurance carrier to limit the number of locations and insured value coverage within the given loss potential area. This action helps manage the overall loss potential for an event and allows the insurance carrier more flexibility in coverage options.

Capacity tends to refer to the maximum insurable value an insurance carrier may be able to deploy. This can be the capacity of several customers in a geographical area (working in hand with clustering information and generally known just to the insurance carrier) or it may be the capacity available to a single customer in a given geographical area or company-wide (more known to the customer and their broker). For companies with large single or multi-location values, it is not uncommon for insurance carriers to require in-depth risk assessment information prior to releasing their full capacity limits.

Layering works with both clustering and capacity when developing an insurance program. Layering is when multiple insurance carriers are needed to deploy the full insurance coverage required by a customer. This may be for Property Damage coverage or Business Interruption coverage (including CBI coverage). Layering occurs when multiple insurance carriers, either horizontally and/or vertically, cover a portion of the overall insurance requirements (see diagram). Generally, your broker will help establish the coverage layering and ensure the insurance carriers are providing policies with similar or the same wording (to avoid coverage anomalies).

Insurance capacity and layering





In 2011 Thailand experienced record-breaking monsoonal rainfall, the most intense in its 61 year history of monitoring precipitation records. The country recorded rainfall that was approximately 2,000 millimeters above the annual average in south Thailand (Bangkok) and over 1,300 millimeters above annual average in northern Thailand (Chiang Mai). In total the floods lasted approximately 175 days (from July 2011 to January 2012), resulting in over USD 46 billion in property damage loss, with approximately 45% of that being insured.

At the time of the Thailand floods, 40%-45% of the world's hard drive manufacturing was located in the country. The flooding (likely made more intense by climate change) either impacted manufacturing facilities directly or caused a loss to transportation infrastructure, preventing hard drives from reaching the retail market. Other industries impacted included manufacturing of semi-conductors, automotive parts and other digital devices such as cameras.

This event served as a catalyst for reinsurance companies to require more in-depth risk exposure information prior to releasing reinsurance capacity to front line carriers, which still exists in the market today.

- When assessing your tier one critical suppliers, also include a clustering exposure. Some of your suppliers may have several locations in a specific region and, with severe weather events, they could all be in scope for a potential loss. In addition, also understand your suppliers' competition (your alternative supplier) and whether they are also clustered in the same region. It is not uncommon for companies with similar competing products to share regional locations. This may be due to sources of raw materials or labour availability/costs/infrastructure.
- Similar to CBI exposures, your organization may also have interdependent locations in regional areas, subject to the same severe weather events. Understanding internal supply lines and how to deploy alternatives can help reduce the amount of stacking/cascading interruption losses to the company revenue.
- If your organization has several global critical tier one suppliers and/or interdependent internal locations, have you mapped out the value chain flow? Are you aware of the various nodes in the value chain that could be impacted and would losses to those nodes invoke CBI coverage? It is important to not only generate a visual 'map' of your organizations' supply chains, but it is also important within that 'map' to identify the critical supplies (hard to acquire, single sources, etc.) and the value flow of the top revenue generating products/services. This not only allows you to see all nodes exposed to a loss, but also which ones may have more of a financial impact, thus allowing your organization to plan continuity in a more cost-effective activity.

What are the common severe weather events and natural hazard exposures that may cause a CBI or interdependency loss?

Understanding your exposure to CBI and interdependency losses is similar to understanding your location exposures; however, you would need to take a slightly different approach to understanding the consequences. For CBI exposures, you need to understand from whom and from where your direct tier one supplies originate and, if possible, have a general understanding of your suppliers' continuity plan (which is important to foster confidence in your supplier). It would be the same for CBI exposures to your downstream customers. For interdependencies within your group, understanding the potential location of BI exposures allows you to determine where critical locations exist and better understand the potential ripple effect of a loss throughout the organization.

- **Flood**: Likely the most common exposure that can cause transportation routes to be impacted without an insurable physical damage loss. This is problematic because a flood can still cause losses to revenue without triggering insurance coverage. Less common, but under the same pretext, flooding can also impact internal dependencies. While flooding can cause damage to building infrastructure and services triggering an insurance policy, understanding the impact and interruption is important when considering insurance as a risk transfer option.
- **Wildfires**: Similar to floods, wildfires can impact transportation routes that can interrupt your receiving of external (CBI) or internal (Interdependency) supplies/goods. Wildfires often grow in size, potentially having large impact areas. If your suppliers or internal locations are clustered in a given region, a single event may cause serious group losses with larger, more devastating impacts. For organizations relying on the forestry industry (mass timber construction, pulp & paper, sawmills, etc.) wildfires can have a direct impact on the raw material source. Working with your broker and/or carrier to understand coverage would be key to developing planned alternatives.
- **Windstorms**: Some windstorms, such as tropical storms and hurricanes can have a wide area of impact/destruction. Clustering of internal and/or external suppliers can lead to large losses. In addition, windstorms can travel across multiple regions/provinces/countries, so the clustering may be spread over a much greater area, increasing probability of a CBI supplier/customer loss. Interdependent location(s) can also be impacted.

The 2022 Ontario/Quebec derecho

A derecho storm (essentially, a long line of fast moving thunderstorms) in Southern Ontario/Southern Quebec in May 2022 spanned some 1,000 kilometres in length when considering both the US and Canadian portions. Considering Canada alone, there was damage reported along an 800 kilometre-long tract, with several major Canadian urban centres being impacted, including Windsor, London, Hamilton, Burlington, Oakville, Mississauga, Toronto, Pickering, Whitby, Oshawa, Kingston, Ottawa, Montreal and Quebec. The region impacted by the storm is responsible for generating about a full quarter of the country's GDP. Close to 63,000 claims were filed as a result of the event. Insured damage exceeded $1 billion.

- **Winter Storms**: As a common occurrence across Canada, winter storms may not always impact your tier one suppliers and trigger a CBI policy. Some of these suppliers may reside in a Canadian or international location with a more forgiving winter climate and thus not be impacted by a single event. Due to the regional nature of winter storms, it can be more likely that a Canadian business may see several locations in a given region experience a BI loss which could impact interdependencies or stacking location losses. As an example, there may be a severe winter/ice storm that hits Southern Ontario and Eastern Quebec. This may impact a few warehouse/distribution nodes in a network, but could also shut down several retail locations in impacted cities… smaller multiple loss events stacking together to equal a larger BI loss.

How do you protect your business revenue beyond risk transfer?

Methods to protect your business revenue from severe weather and other natural hazard events are constantly evolving and improving. Better data gathering and analysis allows for improved predictive modeling indicating the potential location and severity of events. In addition, when each event occurs, businesses now often have access to critical information that allows them to measure any plan they may have against real events (i.e., did our plan work?). Helping to reduce the risk of loss will not only make your organization more resilient but will also better complement the risk transfer protection provided by insurance.

Your broker or insurer may be able to help with modelling and data analysis to help you better understand the risks your business may experience and how best to mitigate them.

Adapting your step-by-step BI assessment process to better protect your business revenue and reduce CBI and Interdependency risks and impacts

The base process outlined in the first *Mind your business* bulletin in this special series (business interruption), can still be used to expand the identification of tier one suppliers/customers as well as Interdependency exposures. As a reminder, they are:

1. Understand your current business interruption coverage so you can start assessing where the gaps exist.
2. Compare the knowledge you have of the critical infrastructure serving your business to potential gaps in your current insurance coverage.
3. Using the knowledge gained through a gap analysis, bring in the potential and known exposures associated with severe weather/natural hazard events.
4. Review the full analysis and begin to collate events/scenarios that are similar or may be solved by a single solution.
5. Further build out the full document/registry from the BI process and incorporate the risk mitigation and risk reduction solutions into your next steps and BCP.

While the steps above have been deployed to understand single location exposures, there are some unique added steps/approaches for both CBI exposures and interdependency exposures.

1. Contingent Business Interruption adaptations

- CBI coverage is different from BI coverage and policy wordings can differ from insurance carrier to carrier. Some may require a more in-depth analysis of tier one suppliers being named for said coverage, but that can have a positive effect as your insurance carrier or independent contractor can help identify more unique CBI exposures.
- When identifying critical tier one suppliers, it is also important to identify alternative suppliers and, in some cases, eventually look to secure supply agreements in the event of a loss to your initial supplier.
- When identifying CBI supplier exposures, you may also need to assess your commitment to supporting that supplier in the event they experience a loss. They may be the best (or only) supplier for your operations and your support could allow them a faster recovery, less market share loss, and help them be a more committed supplier in the future. For large organizations that can provide the support, this is not an uncommon approach to supplier recovery.

2. Interdependency adaptations

- Having an unfettered and honest review of interdependent locations is critical when assessing your exposure. Making assumptions as to what products/services may be at risk from your interdependent locations could result in an under or over estimation of the exposure. These mistakes can generate unforeseen costs and/or time to recover.
- Assessing extra capacity at sister facilities as an option for risk reduction should be clearly understood. Most operations work lean and having spare capacity at a high level is not usually within a lean model. In most cases, the assumed spare capacity is generally well above the real spare capacity and can provide a false sense of resilience.
- Depending on the climate exposures and severe weather events typical for the organization's locations, assuming these events could become more frequent and severe in the coming years is a good plan to implement. It is better to be over prepared for a severe weather event loss than be under or not prepared.
- When assessing interconnected locations that may be impacted by a severe weather event it is helpful to map out the epicentre and severity path (similar to mapping out a hurricane's projected path and strength). This allows an organization to see which locations may be impacted by an event, the projected geographical area impacted and the interdependencies associated with the impacted locations. It should be noted that these models can be mapped for most loss events, but do require consistent monitoring as severe weather events can change dramatically as they evolve.

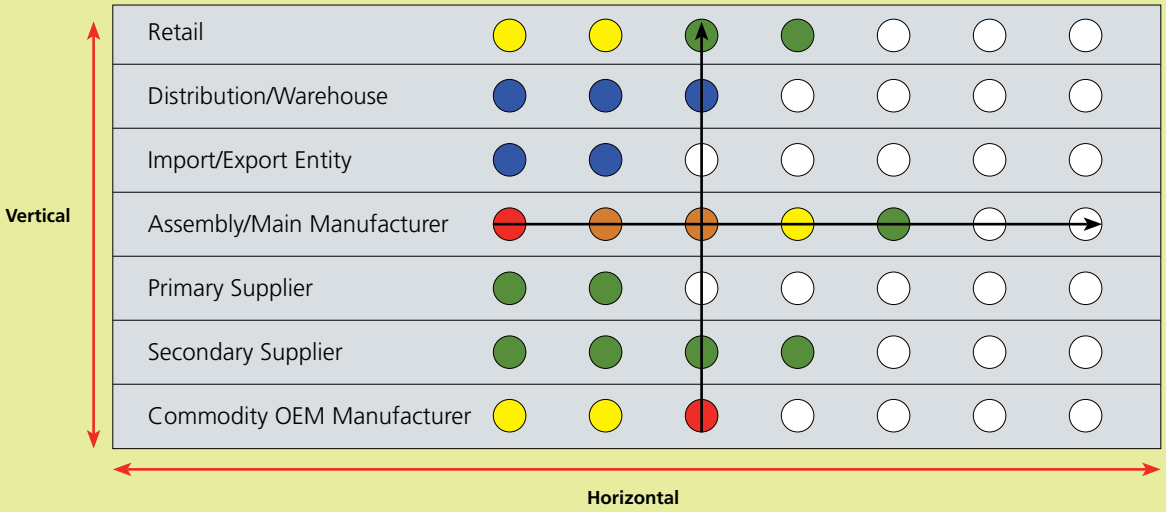
When doing a gap analysis or assessment for CBI and interdependency exposures, this is a critical point to invest in resources that can digitally map locations, supply routes, supply flow and tie in value chain flow and exposures that better visualize and understand the various connection nodes that can be exposed to loss.

Understanding supply integration to manage process flow

Horizontal supply line: More common to be impacted by CBI loss exposures. Horizontal supply lines basically are integrations that have several locations operating the same process. Their tier one suppliers/customers are more easily identified, and they tend to have the ability to recover operations at other locations if one location were to be impacted.

Vertical supply line: More common to be impacted by interdependency loss exposure. Vertical supply lines are when the single organization has control of the material at several tiers upstream and downstream. These supply lines are therefore more dependent on each other and an interruption at one can ripple through to the other locations, most likely downstream of the loss.

Vertical vs. Horizontal Integration

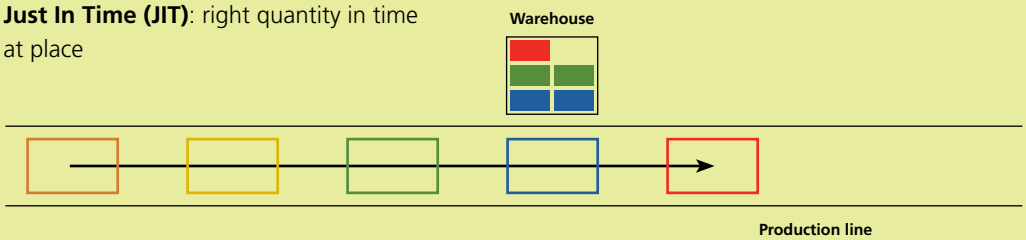


Just In Time (JIT): Refers to receiving a supply at an assembly/manufacturing location at a time that is in synchronization with the process. Helps eliminate storage requirements (i.e. minimal stock on hand and thus less space required to lease and less physical damage risk), but is more susceptible to quick cascading losses, both CBI and interdependency.

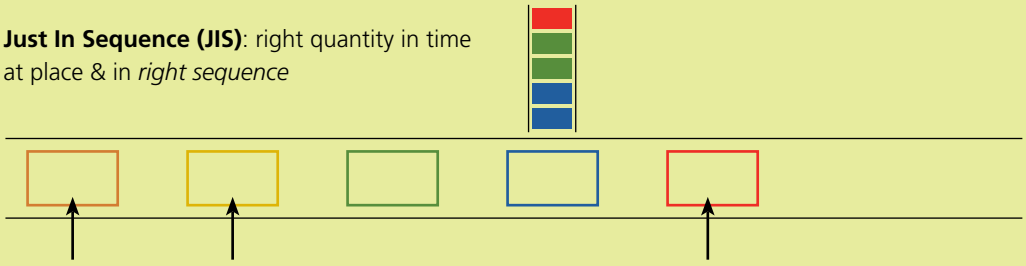
Just In Sequence (JIS): Refers to receiving a supply at your assembly/manufacturing location where that supply is specifically required in the sequence of the assembly/manufacturing. Proper JIS supply control can ensure a smoother assembly/manufacturing process as the supply tends to be at the right place where needed and the movement has been streamlined.

While having similar effects, JIT and JIS tend to work harmoniously. The overall goal is to ensure supply, whether internally or externally provided, to be at the right place at the right time to provide a smooth and efficient assembly/manufacturing process, thus saving time and money.

Just In Time (JIT): right quantity in time at place



Just In Sequence (JIS): right quantity in time at place & in *right sequence*



The impact of climate change, how it may affect your resilience in the future towards your tier one suppliers/customers and intercompany supply locations and how to manage the evolving risks

As with having assessed your business interruption exposures, even with the basic risk reduction structures in place to help manage your CBI and interdependency exposures, severe weather and natural hazard exposures will still have some direct and evolving impacts.

1. Not only will you need to monitor your individual locations to assess increasing severe weather-related risks, but with CBI and interdependency locations now in the mix, you will need to monitor a broader region or even global exposure to these risks.
2. Increased frequency and severity of losses will have an impact on the coverage appetite of insurance and reinsurance carriers. This can dramatically affect the available capacity per carrier as well as the affordability of risk transfer products. The need to further improve risk reduction through loss control measures may not be adequate across your internal locations with interdependencies and may render some CBI locations uninsurable due to the uncontrollable exposure of some severe weather events in some regions. Coverage issues may also become more challenging as hazard mapping and modelling tools improve.
3. CBI and interdependencies are at the cusp of your farther-reaching supply chain (discussed further in a separate *Mind Your Business* bulletin). Using the process to identify CBI and interdependency exposures can lead to a better understanding of the additional upstream and downstream nodes exposed to other regional severe weather events. This will be helpful in understanding and applying helpful risk mitigation strategies but can also uncover serious exposures that were previously unknown. As such the process of becoming more risk aware may actually place your organization into a high risk category that needs immediate attention, eventually resulting in potential capital expenditure to resolve.
4. Long term effects of severe weather events exacerbated by climate change can impact the need for various products or services (positively and negatively) into the future. To pivot an organization may need to revisit its internal organizational structure as well as require it to better understand which tier one suppliers are necessary and which may no longer be noted as critical. With changes to tier one suppliers and customers, an organization will also need to ensure it can acquire the right type and volume of supply and have the right customer(s) downstream.

Like assessing your organization's BI exposures, to continually manage the evolving risk, a regular process should be established to review the severe weather and natural hazard risks your inter company locations and your important tier one suppliers/ customers may be exposed to. Any risk reduction and recovery plan will require a consistent and regular review of these internal and external locations. Quick adaptation to a new strategy will help risk reduction (lean and flexible organizations pivot quickly) but the balance must be managed consistently.

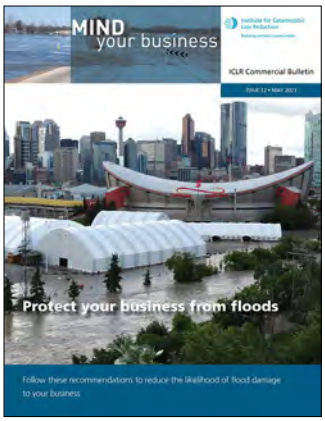
As it is worth repeating, the best way to combat CBI and interdependency exposures that may be exacerbated by climate risks is to develop, manage and maintain a well-structured impact analysis and be forward thinking about climate change impacts and how they may impact your tier one and internal organization operations. Utilizing digital solutions to help identify and manage your exposures can be key to having a resilient business interruption-ready organization (discussed further in a separate Mind Your Business bulletin).

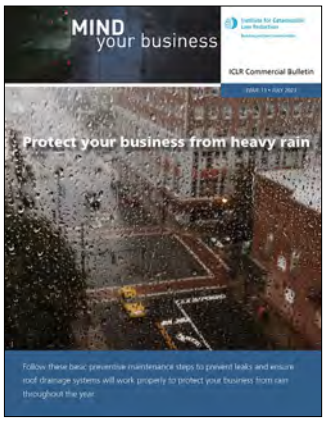
From a CBI position, the successful organization will have built a strong and secure relationship with both its upstream and downstream tier one suppliers and customers. They will work to embed transparency into their business resilience as well as share the organization's business resilience with tier one suppliers and customers. Trust and transparency can be very powerful in ensuring confidence for all parties.

From an interdependency position, the successful organization will need to train a critical eye on all its locations and understand key equipment and processes to ensure they have a full understanding of which parts of each location are dependent on other internal locations as well as knowing which locations can be provide viable secondary capacity in the event of a loss.

Not knowing which sister facility is dependent on another, not knowing which sister facility can handle the same operations and have adequate capacity will only cause further delays, confusion and chaos.

Other publications in this series can be found at https://www.iclr.org/commercial-insurer/





Institute for Catastrophic Loss Reduction

Mission

To reduce the loss of life and property caused by severe weather and earthquakes through the identification and support of sustained actions that improve society's capacity to adapt to, anticipate, mitigate, withstand and recover from natural disasters.

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