How Businesses Perceive Energy Risk

There have been a number of studies describing a multitude of risks to infrastructure — and the interdependencies between different infrastructures. But, there has been far less analysis of how businesses perceive the risks of disruption, which risks they worry about and what might motivate them to take action to mitigate the impact of those risks before a disaster occurs.

The goal of this White Paper is to create better understanding of how businesses identify and prioritize risk, and to help create a bridge between government programs and partnerships and business priorities, objectives and needs

No one can guarantee a risk-free or disruption-free future. But, disruption need not cascade into economic disaster — especially if the impacts are mitigated prior to the interruption in service and real-time communications are available to share a timetable for restoration.

A particular spotlight is on small businesses' identification and assessment of risk. Surveys show that many small businesses tend to lack risk assessment and risk management capabilities [see business surveys below]. Only half of small businesses have a business continuity plan — and many of those that do, fail to test the plan. That may be one reason why four out of ten small businesses fail to reopen after disasters. This compounds the direct losses from the disaster. Small business constitute a significant portion of every local economy — representing 50 percent of GDP as well half of all jobs. Hence, their capabilities to deal with disruption have implications for regional growth and employment.

- Section 1 of this White Paper summarizes surveys on how businesses, particularly small businesses, perceive risk overall.
- Section 2 captures the results of a Resilience Workshop in Newark in which businesses were asked to identify the risks and challenges they might face in the event of an energy disruption
- Section 3 reflects the risk management perspectives of the president of a manufacturing firm in Newark.

# Section 1: Business Survey Results on Risk and Risk Management

Travelers Business Risk Index
May 2014

Major conclusions from Travelers Business Risk Index 2014 include:

- Nearly half of all businesses believe the world is growing riskier
- Weather events are coming onto their radar screen as a new risk.
- There are significant differences in the way small and large businesses perceive and manage risk — and this may have implications for government policies.
- Businesses that pay close attention to risk have higher financial performance.

Risk Environment: The survey found that nearly half of businesses, particularly large and mid-sized companies, believe the world is growing riskier. The survey asked: "Thinking about the overall level of risk your business faces — including risks to your employees' and your customers' safety, your business's property and financial well-being, and to your business overall — and thinking about how this level of risk is changing. Do you believe the business environment is becoming more risky, less risky or is the risk environment unchanged?" [See figure 1.]

Figure 1: Perceptions of Risk
Traveler's Business Risk Index 2014
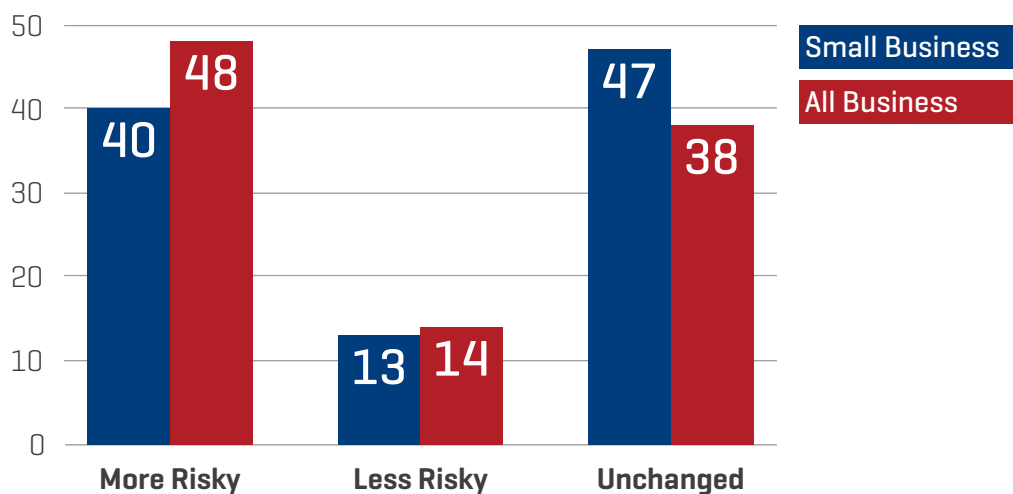
Extreme Weather Risks: Extreme weather events appear to be much on the minds of business owners, with 60 percent expressing concern that severe weather events in the United States are becoming more regular. Owners of small businesses are most likely to express concern about weather risks at 65 percent, but mid-sized businesses (59 percent) and large businesses (56 percent) appear to agree.

While executives worry that severe weather events are increasing, only one in three (32 percent) are concerned about severe weather creating a threat to their business operations. More than half (52 percent) of those surveyed feel that the frequency of extreme weather conditions does not change the likelihood of damage to their businesses. Still, 37 percent do feel that the potential for loss has increased due to the change in weather patterns.

Common Risk Strategies: A time-tested method of dealing with risk is to formulate a business continuity or disaster recovery plan that identifies risk, creates plans and methods for mitigation of these risks, and tracks these efforts for effectiveness. The survey found that only 47 percent of companies overall had a formal disaster recovery plan — and a far lower percentage of small businesses.

Figure 2: Risk Management Strategies
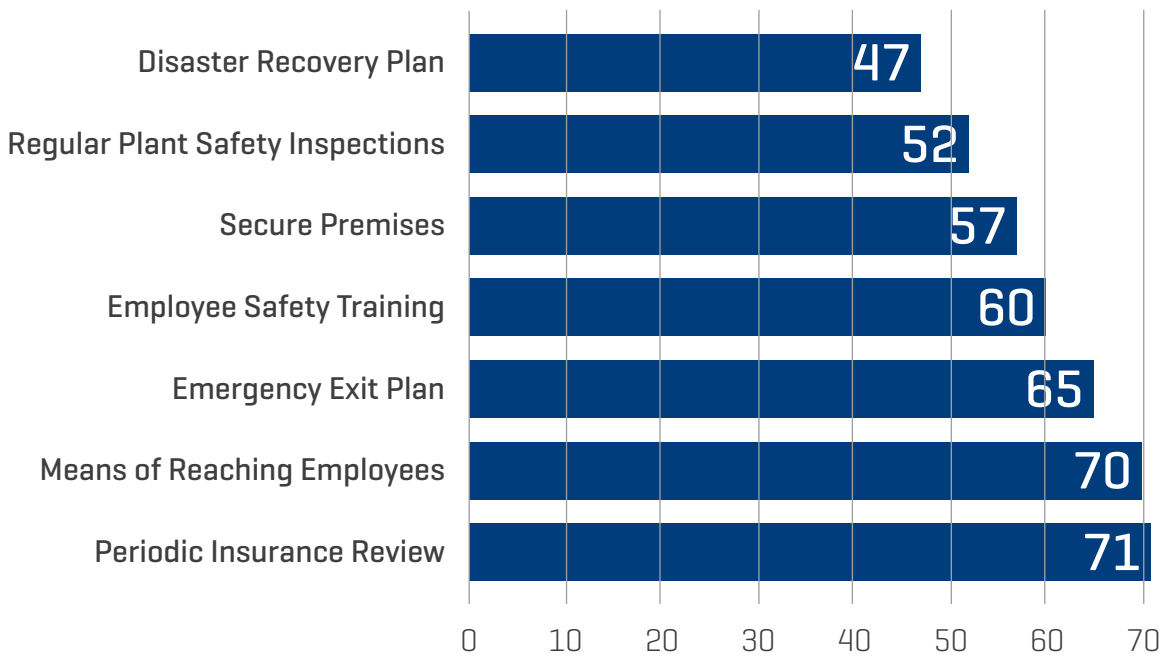
Risk Mitigation Actions: Company size appears to be a major factor in distinguishing how prepared a business is to weather risk. In nearly all cases, we see that larger companies were more likely to have taken the risk management steps needed to be prepared.

Chart 1: Risk Mitigation Actions Taken By Company Size

	Overall	Small	Mid-Sized	Large
Conduct periodic review of insurance	71%	61%	78%	73%
Have means to reach employees and their family members in case of extreme emergencies/crises	70%	68%	70%	73%
Have an emergency exit plan	65%	49%	74%	72%
Provide employee safety training	60%	42%	68%	70%
Have secure premises	57%	43%	62%	68%
Have regular plant safety inspections to ID structural, electrical or other physical risks	52%	34%	56%	68%
Create a business disaster recovery plan	47%	23%	50%	71%
Consult with specialist from your insurance agent/broker	42%	25%	46%	56%
Consult with safety/loss control/risk specialist from your insurance company	45%	23%	54%	61%
Prepare for extreme weather event or natural disaster by storing things	45%	42%	46%	47%
Consult insurance company website	32%	26%	34%	38%
Consult an industry association for advice	30%	19%	33%	38%
Consult a colleague or peer for advice	38%	29%	41%	45%
Install an emergency panic button	33%	17%	36%	47%
Consult Internet for advice	31%	26%	33%	33%
Use telematics devices for vehicle monitoring	18%	7%	19%	30%
Hire a third party consultant	21%	7%	20%	40%

Risk Management and Business Success: The Travelers survey found a correlation between those companies that practice risk management and those that claim success in their markets. While correlation does not prove causation, the evidence shows a relationship between companies that focus on risk prevention and the company's self-reported performance relative to others in the industry.
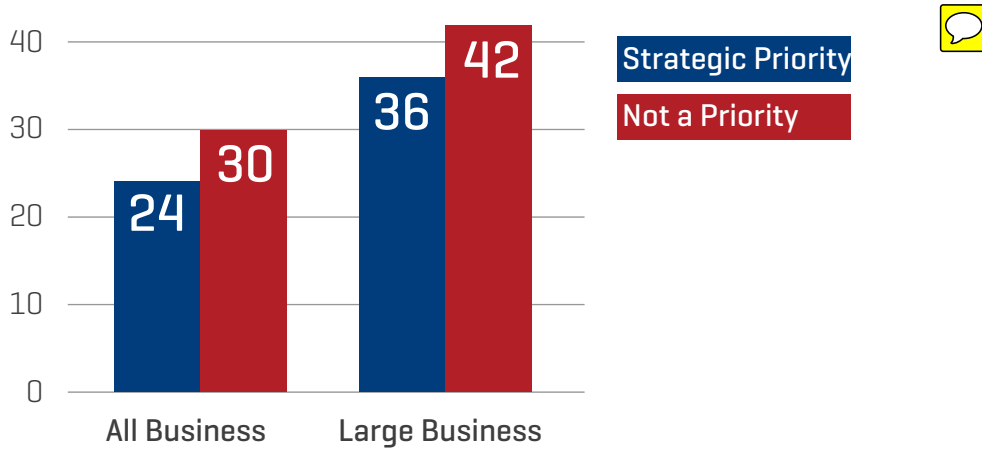
The majority of business executives who say their company makes managing risk a strategic priority also say they are outperforming other businesses in their industry financially. Those businesses that report they do not make risk management a strategic priority say they are either performing near their industry average or are underperforming within their industry.

Figure 3: Attention to Risk Associated with Higher Financial Performance
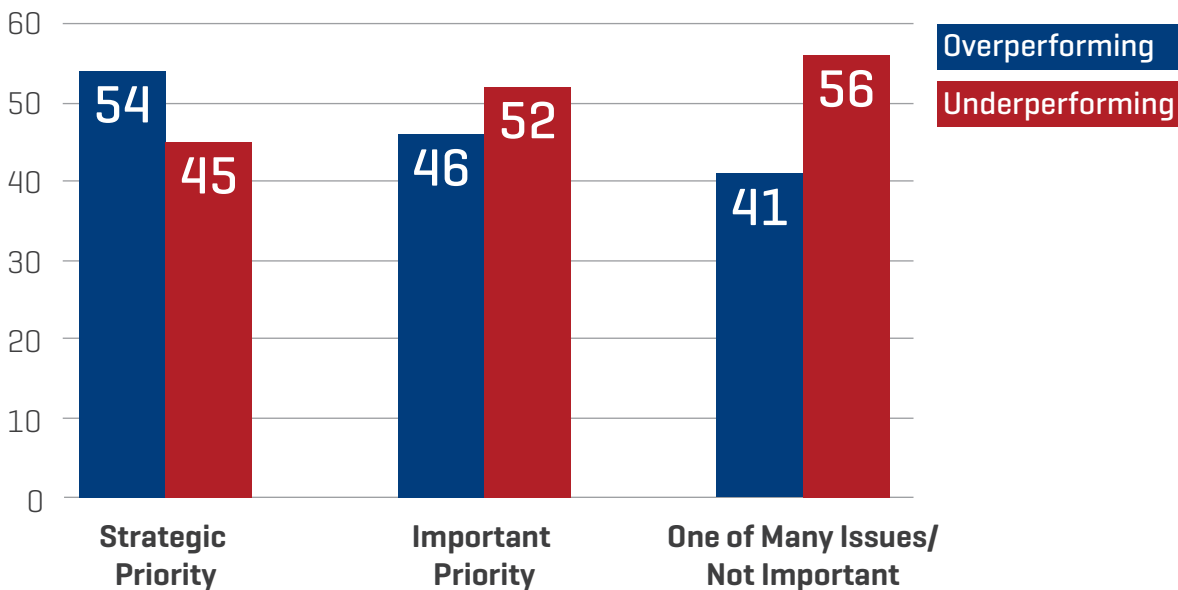
Travelers Framework for Risk Assessment for Businesses

Consider events that could occur within you facility and events that could occur within your community. Below are factors to be considered which may be broken down into two categories: natural and man-made.

Historical: What types of emergencies have occurred in the community, at the facilities or other facilities in the area including: fires; hazardous material spills; transportation accidents; terrorism; utility outages; severe weather; earthquakes; hurricanes; tornadoes.

Geographic: What can happen as a result of the facility's location? Keep in mind: proximity to flood plains; seismic faults and dams; companies that produce, store, use or transport hazardous materials; nuclear power plants.

Technological: What could result from a process or system failure? Consider: fire; explosion; hazardous materials incident; safety system failure; telecommunications failure; computer systems failure; power failure; heating/cooling system failure; emergency notification system failure.

Human Error: What emergencies can be caused by employee error? Are employees trained to work safely? Do they know what to do in an emergency?

Physical: What types of emergencies could result from the design or construction of the facility? Does the physical facility enhance safety? Consider: physical construction of the facility; hazardous processes or byproducts; facilities for storing combustibles; layout of equipment; lighting; evacuation routes and exits; proximity of shelter areas.

Regulatory: What emergencies or hazards are you regulated to deal with? Analyze each potential emergency from beginning to end. Consider what could happen as a result of: prohibited access to the facility; loss of electrical power; communication lines down; ruptured gas mains; water damage; smoke damage; structural damage; air or water contamination; explosion; building collapse; trapped persons; chemical release.

Estimate likelihood of each event.

- Assess the potential human impact from the event — possibility of injury or death.
- Assess the potential property impact.
- Assess the potential business impact. Consider: business interruption; employees unable to report to work; customers unable to reach facility; interruption of critical supplies; interruption of product distribution; company's potential breach of contractual agreement; imposition of fines, penalties or legal costs.
- Assess the infrastructure impact. Analyze the potential impact due to loss of infrastructure that supports a facility including: loss of roads for shipping and receiving; restricted customer access; loss of communication lines; interruption of electrical power and/or natural gas; loss of water supply.

Small Business Disaster Survey 2013

http://www.alizila.com/survey-us-small-businesses-not-ready-natural-disasters-sandy-nemo

E-commerce companies Alibaba.com, Vendio and Auctiva conducted a survey of 600 small and medium sized retailers, many of whom sold goods and services on line. Because they depend upon computers and Internet access, e-commerce companies are seen as particularly vulnerable to power cuts and network service disruptions. The survey found that:
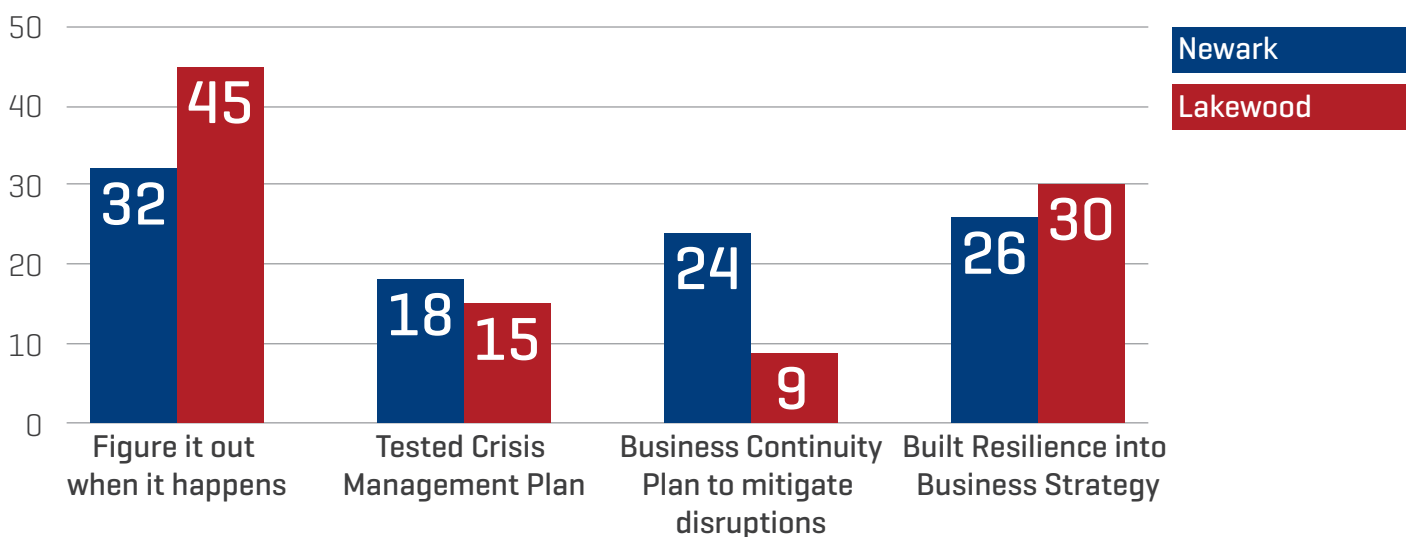
- 74 percent of survey respondents do not have a recovery plan.
- 84 percent do not carry natural disaster insurance.
- 71 percent of survey respondents said their businesses lacked a back-up generator that could be used in case of electrical outage. Some said they would be forced to close down if storm damage was "severe."
- 70 percent of respondents said they felt vulnerable to natural disasters.
- 37 percent of respondents are not sure how long it would take them to return to "business as usual" if disaster struck. Thirty-three percent said one week, while 16 percent said two weeks.

Resilience Workshop Snap Polls

Snap polls were conducted at two Resilience Workshops in Newark and Lakewood, New Jersey, sponsored by the SBA, New Jersey Small Business Development Centers and Travelers Insurance. The snap polls were intended to get a sense of whether businesses were identifying risks before a crisis hit and what capabilities they were developing to mitigate them.

Risk Management Strategies: At both Workshops, the largest percentage of participants described their risk management strategies as "We'll figure it out when it happens". Significant numbers of Workshop participants, however, also believe that they have built resilience into their business strategies.

Figure 4: What is Your Risk Management Strategy

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Newark: Figure it out when it happens 32, Tested Crisis Management Plan 18, Business Continuity Plan to mitigate disruptions 24, Built Resilience into Business Strategy 26

Lakewood: Figure it out when it happens 45, Tested Crisis Management Plan 15, Business Continuity Plan to mitigate disruptions 9, Built Resilience into Business Strategy 30

Operational Risk Management: A significant share of participants in the Workshops believed that they were prepared to manage the impacts of utility disruptions, particularly communications and power. But, few had actually communicated with their utility providers to mitigate the impact of a disruption.

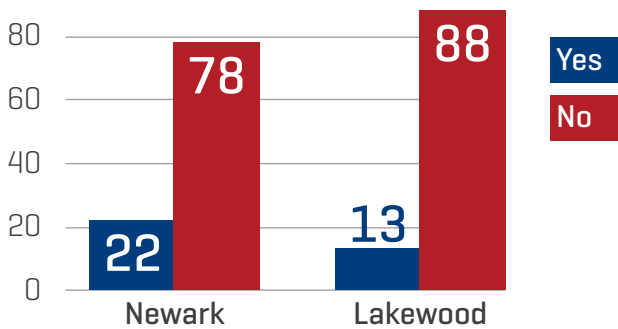**Figure 5: What is Your Risk Management Strategy**

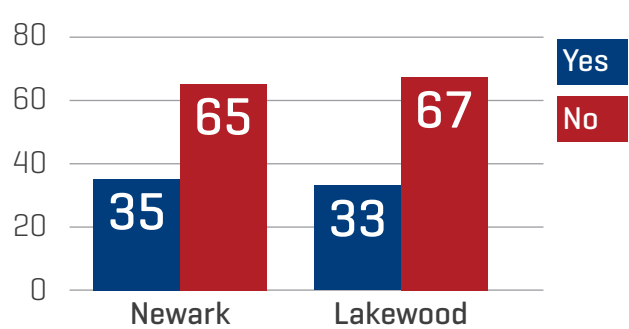Do you have a plan to keep the business running if the power goes out?
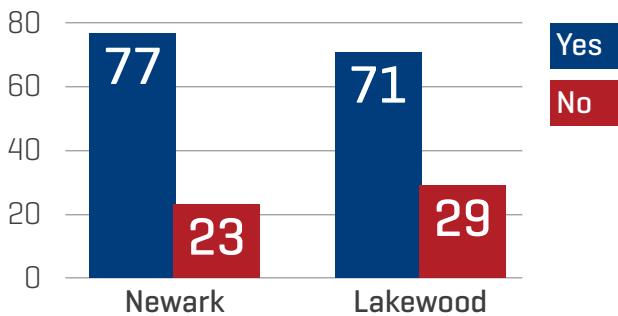
Do you have a plan to sustain voice and data communications during disruptions?
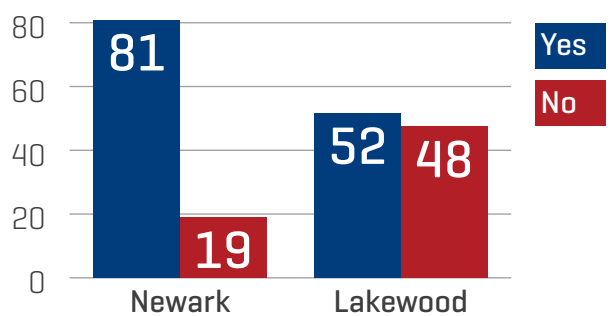
Have you discussed mitigating the impact of energy disruptions with your providers?

Have you discussed mitigating the impact of disruption with your voice and data providers?

Section 2: Business Assessments of Energy Disruption Risk

A Workshop held in Newark, New Jersey in September 2014, attended by small business owners, large company representatives, government officials at the city, state, federal levels and subject matter experts, considered the risks of a major power disruption and examined which risks they believed they could mitigate and which risks were outside their ability to manage.

In facilitated breakout sessions, participants heard a simulated news report of a widespread power outage.

Lights Out: Virtual News Network Special Report.

Our breaking news coverage continues. Streets without power. Millions without lights. A widespread blackout continues to impact many of northern New Jersey's counties, cities, and towns. The cause and likely duration of this outage are as yet unknown. No one has claimed responsibility for the blackout, but the timing is seen to be problematic in some circles.

The good news tonight comes from Newark and surrounding counties. On the ground in Newark and the surrounding counties, the actions taken after 9/11, the 2003 blackout, and Superstorm Sandy are bearing fruit. Emergency power and other preparedness measures have kept many critical systems functioning and emergency personnel are on the job. Mass transportation systems are operational –albeit at reduced capacity. While cell phone, cable, and data communications services were at first impacted extensively, providers are restoring services on a priority basis.

Governor Chris Christie today commended New Jersey's emergency preparedness community, saying that it has "never been more ready to deal with disruption, even on the scale we are seeing now." The Governor also stressed, however, the potential for longer-term impacts, warning that the crisis could undermine New Jersey's steady recovery from the recent recession and Hurricane Sandy. The governor stressed, in particular, that millions of small businesses in New Jersey are at risk. If historical trends were to hold, nearly 40% may not reopen. This could devastate New Jersey's economy which depends on small business for half of its GDP and state employment.

One further sigh of relief: temperatures, which had reached near-record levels just as the blackout hit, are projected to be milder throughout the coming week — easing the strain on already strained power systems — concerns remain. Despite its resilience in the face of this unprecedented blackout event, Newark's residents and businesses are all asking the same thing: how quickly can we return to business as usual here.

Stay tuned for more updates on this unfolding economic crisis.

Key Risks for businesses from a Power Outage

Once the scenario was shared, the facilitator asked participants to identify the key risks and challenges to their businesses from the scenario. The goal was to stimulate the identification of risk framework that companies would want to begin to mitigate. The risks they identified — summarized from the discussion in all four breakout groups — is captured below.

External risks — defined as outside the direct control of the company. These included actions by customers or suppliers and critical infrastructure interdependencies.

1. Loss of Suppliers/Customers
- Suppliers are closed or cannot fulfill contracts.
- Customers stay home or are closed themselves.

2. Loss of Other Critical Infrastructure:

Transportation
- Transportation systems are not working for suppliers to deliver product.
- Transportation systems are not working for employees to get to work.
    - No traffic lights
    - Bridges down, roads closed (or limited to emergency personnel)

Communications/Information
- There is no way to inform customers of status of business, who may not wait before identifying another vendor.
- Lack of communications to vendors and suppliers snarls supply chains and makes recovery timetable difficult to manage .

Water Utility — Front and Back End
- Insufficient water
- Lack of power can bring the sewage facilities down or cause overflow

Energy
- No fuel (gasoline)
- Lingering power quality problems. Brownouts and poor quality power force reset of machines; loss of customers to delays.

Unexpected
- Changes in the prices of raw materials

Internal risks — defined as risks the company could potentially mitigate through advance planning or manage at the time.

1. Lack Of Physical Access

- Can the building be accessed (e.g. are the streets around the space passable and safe)?
- Is the building safe for customers and employees and are critical functions -- data, phone, power, water – working to a level that makes it worthwhile to come in.

2. Lack of Access to Capital

- Is there enough cash reserve to pay bills or meet the cost of replacement equipment or inventory?
- Is there access to outside capital or loans?
- Problems in insurance coverage or claims
  - Poor inventory records limit recoverability.
  - Inventory lists are not backed up and data may be lost. Dated inventory may not be covered by insurance
  - Coverage for home offices may be limited
  - Problems in claiming and getting insurance approvals.

3. Operational Risks

- Lack of Risk Intelligence:
  - Where do I get access to credible information about the situation to make business decisions?
    - Can other information platforms be accessed — emergency responders, regulatory agencies
- Damaged or At Risk Inventory
  - Flimsy or intermittent record keeping. Do I know what's in inventory?
  - Inventory is in warehouse, but no way to get it out.
- Production Risks
  - Risks involved in stopping a production run in the middle of the job. What can be salvaged? (e.g. ink sitting on presses for a week).
  - Power Surge impacts
- Lack of Access to Data/Communications
  - Lack of access to data and business data. Many organizations rely on computer systems: local network in the cloud, point of sale systems.
  - No way to communicate with suppliers to get information about when orders can be fulfilled or with customers to let them know the status of their order.
  - No way to communicate with employees – to bring them back or keep them out.

- Human Resilience
  - Employees do not want to come to work.
  - Schools are closed and employees cannot come because of family issues.
- Supply and Demand:
  - Sudden increase in demand for services/product — and inability to meet it.
- Security
  - Security: burglar alarms do not work when the power is out and crime increases during blackouts.
- Cascading/Unexpected Risks
  - Unknown, uninsured interdependencies (water in boiler freezes ad cracks the casing, mold).

Key Themes

Cross-Cutting Challenges

- **Understand critical staffing.** Not every job needs to be backed up. During an adverse event, it's critical to understand what does NOT need to be done and how long the company can thrive without that function.
- **Understand human needs.** Employers need to look at the dynamics of people and their home lives — and call on the people who are able to step up more easily.
- **Build business relationships.** Beyond employees, relationships with contractors is a key need to be able to secure the needed repairs, services or supplies .
- **Write down the continuity plan.** Without a written plan, no one knows what to do if the owner is away.
- **Practice preparedness:** Table top exercises are designed to test plans, not substitute for them.
- **Communicate plan to external stakeholders.** "If you have a plan and your key external stakeholders do not know what it is, it's chaotic".
- **Plan for all hazards.** Too many plans are confusing.

Cross-cutting risks

- Lack of credible information to assess damage, understand regional scope of disruption and time frame for restoration of critical services.
- Lack of understanding of interdependencies with other stakeholders.
- Potential that prolonged closure creates permanent loss of key customers, suppliers, employees.
- Lack of a business plan that has been written and tested ("In a crisis, IQ goes to zero".)
- Lack of understanding of critical staffing needs. Not everyone is critical — and criticality can change by the month or time of year. Not all employees have the flexibility to be critical staff).

- Lack of prior relationships with contractors. Without pre-existing contractor relationships, repair and recovery work doesn't get done...affordably.
- Lack of understanding about insurance coverage — what is covered and what is not. (See White Paper on Insurance and Business Disruptions)

Infrastructure Needs

Participants identified two areas in which infrastructure providers — public as well as private – could help create better infrastructure for risk information and management.

1. **Centralized and real-time status reports for all infrastructures during disruptions:**

At the moment, real-time information can be difficult to access and every critical infrastructure maintains a separate system. Participants suggested that situational awareness was key and proposed a continually updated, interactive, GPS-based system which would amalgamate and display the status of restoration across and among the critical infrastructures needed to bring business back on line. At a minimum, this should include energy, water, telecommunications, and transportation and include links to appropriate contacts in agencies and organizations for in-depth queries.

2. **Standard protocols and procedures for initiating and tracking insurance claims and follow-up.**

There is tremendous confusion about what insurance covers and what it does not — and every policy is different. Participants stressed that insurance policies, particularly for small business, are clear and consistent. The industry should develop improved disaster claims management systems, including streamlined assessment, claims management continuity, quality control and information management practices. It should also coordinate with emergency management authorities pre-disaster to establish access arrangements for timely damage assessments.

Section 3: Interview Template: Critical Risks and Energy Disruptions

Interview with Mitch Cahn, President, Unionwear, November 17th, 2014

Unionwear is one of the few remaining textile manufacturers based in the United States. Beginning in 1992, Unionwear began reviving garment factories in NY, NJ, and PA by salvaging their machinery and the expertise of their workers, replacing management with lean manufacturing principles, and focusing on markets for their products that require domestic manufacturing. It's motto: Bringing Manufacturing Back, One Factory at a Time.

Mitch Cahn, president of Unionwear, agreed to address current disruptions and key risks for Unionwear as well as its risk management priorities and needs.

Question: What do you see as the greatest risks to your business?

Answer: I'm in the middle of some key disruptions right now. These are not necessarily what I would see as our top risk priorities, but they command all our attention at the moment.

- **Insurance:** Our insurance provider notified us that our policy has been cancelled. They had given us sixty days to act on recommendations from the insurance inspection which included: filling cracked cement on sidewalks; changing the direction of the roof drainage system (which created a freeze risk due to water draining on the sidewalk); putting scaffolding around the smokestack; replacing plywood shelving on pallets; implementing thermographic inspection of the electrical system; and scheduling a five-year sprinkler inspection. All of those changes were made and documented, but the policy was cancelled anyway. The risks are multiplied because the entity that holds the seller's mortgage on the building has the right to cancel the mortgage and the tenancy if the company lacks insurance. This disruption will be resolved but the underwriting process is commanding my full attention.

- **Sequester and Government Contracts:** Our biggest disruption last year was the sequester. We lost about a million dollars because of it. Another business disruption was created by the pullout of troops from Afghanistan and Iraq. We did about a million dollars less in military business last year than the year before

- **Supply chain disruption:** We are experiencing a supply chain disruption in the supply of a key fabric needed to manufacture 5000 hats monthly for the military. Our supplier developed a specialty material that is resistant to salt water — and that fabric is required by specification in our contract. We routinely receive enough material every month from the supplier to produce the hats. But, in October, the material failed to arrive. It took a week before we learned what had happened to the order — and the fabric delivery was delayed for 75 days. Without that fabric, we cannot manufacture the hats. It turned out that supplies of this specialty fabric are low because the material was diverted for use in the protective gear for medical personnel in West Africa working with Ebola patients.

Our business is actually thriving. But, these are the kinds of challenges that pull me and my other top manager away from our day-to-day management responsibilities — and prevent us from thinking more strategically about risk management.

Top Business Risks: There are other risks that I would see as fundamental to our business survival.

- **Failure to make payroll two weeks in a row:** That would decimate us in terms of personnel. People go elsewhere, making it impossible to recover.
- **Client risks:** A few clients account for 7-10% of our business. Those customers would be difficult to replace.
- **Disaster risks:** If something were to happen to our premises, such as a fire or a flood, we might get insurance payments. But, that doesn't necessarily mean our business would recover. A pandemic could cause a major personnel crisis.
- **Changes to immigration laws:** This could dramatically affect our labor pool – and the risks go both ways. We have many workers who have been certified by the Department of Labor to work here whose citizenship applications are still pending. On the one hand, tight controls on immigration, including reduction or invalidation of labor certifications, could reduce our available workforce through deportations. On the other hand, amnesty proposals can include payment of back taxes to remain in the country, which our workers would not be able to afford.
- **Replacement of key employees:** There are a few key employees with a great deal of institutional knowledge who would be very difficult to replace if they left.
- **Replacement of critical equipment:** There are some major pieces of equipment that would be difficult to replace, if they couldn't be repaired. And, it is unclear how quickly they could be replaced.

Lesser Risks

- **Strike:** Although we are a union shop, we've never had a strike. Closure during a critical crunch time — right before Labor Day or before Christmas — when orders are due, could be devastating.

Question: Are energy disruptions considered as a significant enterprise risk for your business?

Answer: Energy risk is not as big a risk for us. We've experienced many disruptions and have a procedure to close down. Before a major weather event, for example, we secure everything, shut off the power and close the plant. What we do not have is a good plan for keeping everyone informed and getting people back to work when the energy is restored. We have a phone chain, but about half the employees change their phone number every couple of months. So, the list is very difficult to keep current.

A large amount of our business is government and military with long lead times. We try to get as much lead time as possible. So, if there is a disruption that lasts for as long as a week, we're still able to close without missing a delivery deadline. In 22 years, disruptions have never lasted longer than a week. We were closed for a week during Sandy and for less than a week during the blackout and 9/11. We do not have a plan for an extended shutdown, but that's something I'd like to work on.

Question: Who in the company is responsible for identifying and prioritizing risks, identifying alternative suppliers, backup for key components, etc.?

Answer: That would be me. I think we're pretty typical of manufacturers of our size (about 120 employees). Only a handful of our workers speak English as a first language and even fewer attended college. So anything that involves skills beyond a high school level falls on me and my Chief Operating Officer. I do not really have anyone who has the experience to do risk analysis and assessment. Practically speaking, it's hard for me to carve out time to work on these types of risks. I'm typically forced into a reactive position. What project should I drop to prepare for a disaster that may or may not happen?

Question: What do you feel might be needed in your toolkit to help you become better able to identify and manage risks.

Answer: Better lines of communications with the authorities or infrastructure providers as to when service for energy — or in fact any critical infrastructure — will be restored. During Sandy, we had to send an employee who lived near the plant to personally check whether the power was back on. Then, it took another day or two to get everyone back into work. What we need is an interactive, dynamic map of all critical services on our particular block. That way we can get an idea of the situation and the restoration timing.

Internally, we need an automated way to update our phone lists. The problem is that text messages do not bounce back if the number is no longer valid. So, we have no way of automatically and routinely checking the list to find out which numbers are no longer valid.

Question: Do you have a process to assess your suppliers' risks and risk management capabilities?

Answer: Textiles is a very different industry than, say, auto parts. An auto parts manufacturer can call their suppliers and get that kind of information. If I call my suppliers, without exception, every one of them is in worse shape than we are — in terms of being "bottom-heavy," disorganized, not able to answer those types of questions. There is not an ISO 9000 (international quality standard) in textiles. Everything is "loosey-goosey" in soft goods.

In my industry, the products are largely unregulated. There's no liability in the supply chain, unlike the food industry where they have to track the sourcing. Our suppliers are not even able to give us answers to even simple questions, like "When are we getting that shipment?

Over the past 20 years, we've had disruptions in almost every item we buy. We've come away with the philosophy that we need backup sources for everything we buy. So, except when a sole source supplier is required by the government, we have alternative suppliers for everything. And we even have backup plans to make those products in house, where we can.

We can generate a list of things that we purchase in excel. If there was a template that we could use to identify gaps — where we didn't have back up suppliers or backup plans — that we could rank different items in terms of priority and usage — that would be helpful.