

### DuPont

Based on an interview with Donald Wirth, Vice President, Global Operations, Corporate Supply Chains, DuPont

# Managing for Operational Excellence: Supply Chain Thought Leadership at DuPont

The processes that guide supply chain resilience are the same ones that guide operational excellence and productivity across the DuPont Production System. They are built on business integration, superior execution and centers for operational competency, which provide best practices, technologies and tools that are standardized and leveraged across DuPont's 13 businesses.

## Integrated Operations

### Business Integration

- Strong supply chain integration within business teams and business strategies

### Execution

- Drive effectiveness and efficiency in execution in plants and supply chains across businesses and regions

### Operations Center of Competency

- Ensure organizational capability is in place
- Standardize and leverage

## Deliverables

- Integrated strategies and operational plans
- Advancing core values

- Productivity and asset effectiveness among supply chains
- Capability building: people and organizational development

- Technology ownership and integration along supply chains
- Mindsets and behaviors that foster engagement and superior execution

The goal is to create core processes that are simplified, standardized and sustainable. The supply chain operational centers of competency deploy practices and processes, technologies and models to drive continuous process improvement across regions and business platforms. In the supply chain area, the centers' focus cover both efficiency and risk management. They create standards and processes to execute those standards — which are then deployed collaboratively with the business units.

## Change Management: Talent as an Enterprise Asset

A more than 200-year-old business, DuPont has focuses on creating mindsets and behaviors among its workers and managers that enable change. A core insight is that people are simultaneously the key barriers and key enablers of a new culture of excellence needed to cope with increased global competition and operational risks.

When confronted with change, people have a choice. They can either be receptive to alternative solutions, or they can protect the status quo. The challenge that the company is tackling is how to create an environment that encourages a learning choice rather than engenders a defensive response. Half the battle is to create a body of evidence that makes a compelling case for change. Only people who believe that change is necessary are open to learning. If they have not reached that conclusion, they are likely to defend the status quo indefinitely because it is human nature to resist change. The goal for the company is to create learning and communications opportunities that shift mindsets — from unconscious incompetence to mastery.

### Mindsets and Behaviors that Foster Engagement and Superior Execution

<b>Unconscious incompetence</b>	Do not know, do not want to know, resist change
<b>Conscious incompetence</b>	Recognize that things are working well, open to change and alternative solutions
<b>Conscious competence</b>	Engage in formal learning processes to acquire new competencies
<b>Mastery</b>	Integrate new competencies so that they become unconscious competencies

## Principles and Processes for Risk and Crisis Management

Scenarios provide useful tools to test risk readiness and resilience. But, it is impossible to accurately predict every possible risk trigger. What matters at the end of the day is not whether you have correctly forecast the right risk scenario, but whether you have a set of processes and skilled people with the capability to respond to whatever comes along. What you should be scoring is not resilience per se, but your processes to manage for resilience.

DuPont's crisis decision making is governed by standing teams which are charged with handling most aspects of a crisis. For foreseeable events, like a Hurricane Irene, the process is very robust. There was a five day countdown — with meetings every day as the path of the hurricane became more certain. Early deployment of satellite phones to key staff at each of the sites, staging of the mobile command trailers and recovery capabilities all happened before the storm approached.

But, a similar collaborative and coordinated decision making process would occur whether the event was foreseeable or not. The crisis decision making process brings together the key stakeholders: plant managers, regional directors, operational excellence, supply chain leaders, sourcing leaders, public affairs, IT and human resources, among others. Each participant has an area or activity for which they are responsible. For example, IT staff lead information and communications continuity planning. Human resources coordinates outreach to DuPont employees to assess their situation. Supply chain manages mitigation plans in the event plants are out of commission. The plant managers focus on mitigation and response plans.

This process is used irrespective of the nature of the crisis. The team of crisis managers comes together, each with specific accountabilities and responsibilities, to discuss options — whether preemptive or responsive.

## Assuring Supply Chain Resilience

Many people see resilience as belonging to the disaster recovery silo. But, supply chain resilience is always a combination of prevention, mitigation and recovery. Prevention is about setting standards to preclude damage or consequences for a specified set of circumstances. Mitigation requires understanding of the range of possibilities, and that choices must be made to lessen the impact of an event. Response becomes a mindful activity — adapting to the situation as events unfold.

From a prevention point of view, a company does as much as it can economically afford. Since it is impossible to protect against everything, the first step in risk management is a consequence analysis that helps define the potential impact. Risk managers need to understand potential consequences in order to determine whether the risks mandate a focus on prevention, mitigation or recovery. In general, when a strategy becomes overly focused on prevention, rather than consequence management, the challenge becomes infinite, and the cost unaffordable.

A first step is to decide the level of protection desired. Will the bar be set by Hurricane Camille or Hurricane Katrina? If the flood surge exceeds that level, mitigation protocols are needed to reduce the impact. Mitigation plans can be implemented pre-emptively — shut down the plant to avoid damage — or they may be executed in the disaster response stage — move pre-positioned mobile command and control trailers into the area to provide power and communications. One of the key tools for supply chain resilience is a communications infrastructure that lets managers locate their human and material assets with precision. Like everything else, it is a process.

### Learning from Katrina: When Prevention Fails

What happened at Fukushima earlier this year was similar to what happened at the DeLisle plant during Hurricane Katrina in 2005. At the DeLisle plant, every piece of wiring and cable that came into contact with sea water had to be replaced — effectively almost all of the equipment in the plant — at a cost of one hundred million dollars over five months. The level of protection had been set at 1969 Hurricane Camille levels and were inadequate to prevent the damage from a Katrina level storm.

**Some key differences:** The DeLisle plant had been shut down during the hurricane, which helped to contain the environmental impact, while the Fukushima plant was running on full operations when the disaster hit.

At Fukushima, the back up power generators were co-located on the ground level with the primary power systems and were destroyed at the same time.

## Mitigation Protocols During Hurricane Irene

When Hurricane Irene made landfall in North Carolina, DuPont had 19 40-foot mobile trailers staged along the coast — assuring an ability to respond no matter what path the hurricane took.

Disaster mitigation processes and plans are governed by very clear goals. The No. 1 goal is to assure the safety and welfare of employees and their families. Hurricane Irene came through on a Saturday night. By Sunday night, DuPont's "I'm OK" system had accounted for the status of all 18,000 employees in the affected region. The company also knew where their people were struggling with power outages.

After people, DuPont's priorities are: 2) protect the environment, 3) restore orderly plant operations, and 4) restore customer deliveries. These principles provide a guidepost for actions in every crisis and disaster response. At DuPont, we believe that if you do not have a cohesive set of principles, it is impossible to make informed choices. In our case, meeting our goals depends on our people. Without them, none of the other priorities can be implemented.

It is critical to be very clear about principles that set priorities — and everyone managing the disaster needs to be clear about that framework. One of the goals of the national preparedness system should be to clearly articulate those principles and priorities for the government.

## Tools for IP Protection, Supply Chain Security and Integrity

**Quality Assurance/IP Protection:** As part of its supply chain risk management, DuPont is careful to perform technology risk assessments. From a trusted source, a manufacturer that lives by the rule of law, DuPont would accept a confidentiality of information/invention agreement. In other parts of the world, that level of trust would not be deemed appropriate. The company may continue to manufacture there, but would be careful about what technology is shared — does DuPont own analysis of the materials provided and visually observe the loading of the containers? In other areas, there is no trust at all, and DuPont does not source from those areas.

The key piece of intellectual property that is never shared with any supplier is the impurity profile. A supplier may be asked to test materials to a certain point, but will not know exactly what standard DuPont has set.

**Security in Transit:** When a box is locked, sealed and tracked with RFID tags, supply chain managers raise the level of confidence that the material received is the intended shipment. Active defenses of every shipment would be prohibitively expensive. Instead, the mitigation protocol is to reduce the risk that the container could be accessed and the material contaminated without knowledge of the intrusion.

**Counterfeiting:** Counterfeiting is a fraud issue, rather than a supply chain security problem. In most cases, buyers are purchasing from unauthorized distributors in pursuit of steep discounts. For example, Romanian counterfeiters put a product into the marketplace that looked like a DuPont product and sold it to farmers in northern Italy, who bought it from an unauthorized dealer at deep discounts. The product not only did not work as advertised, it killed their fields. DuPont works with government law enforcement authorities to prevent counterfeiting and to manage the integrity of its authorized network of dealers and retail outlets.

**Proscriptive Versus Prescriptive National Approaches:** The U.S. government works differently than governments in other countries. In other parts of the world, the focus is on guidelines with an expectation that companies will find ways to achieve them most efficiently and effectively. In the United States, the focus is on prevention and regulation. How does this play out in practice? In the quality arena, for example, Europeans embrace processes to manage for quality assurance, similar to ISO 9000. In the United States, the standard is a specified failure rate and complex rules on how to achieve it.

A standard that focuses on preventing every risk is different than a standard that describes processes for responding to crises. If you are protecting against everything, you have set an impossible task. If you are managing outcomes, you can focus on specific measures that would prevent or mitigate that outcome.