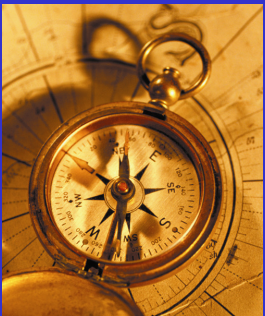


Uncertainty Is Certain

Perceptions of Future Risk on the Rise



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Introduction

Tompkins Supply Chain Consortium defines “uncertainty” as the level of knowledge of the past and current conditions that allows one to describe the existing state and predict a future outcome. Anyone who claims to have a clear picture of the past and current state and thinks they can predict the future is wrong.

Gone are the days when only history was used to understand the future; today, businesses have to plan for uncertainty. To get a better view of how much uncertainty is certain, the Consortium conducted a survey about uncertainty and its impact on supply chains. The findings from the survey are discussed in detail throughout this report.

As shown in *Figure 1*, supply chain leaders are more uncertain now than one or two years ago, and overwhelmingly so. The events of the past two years and the precariousness of the near future are challenging forecasting, budgeting, business planning and other processes that are dependent on historical information.

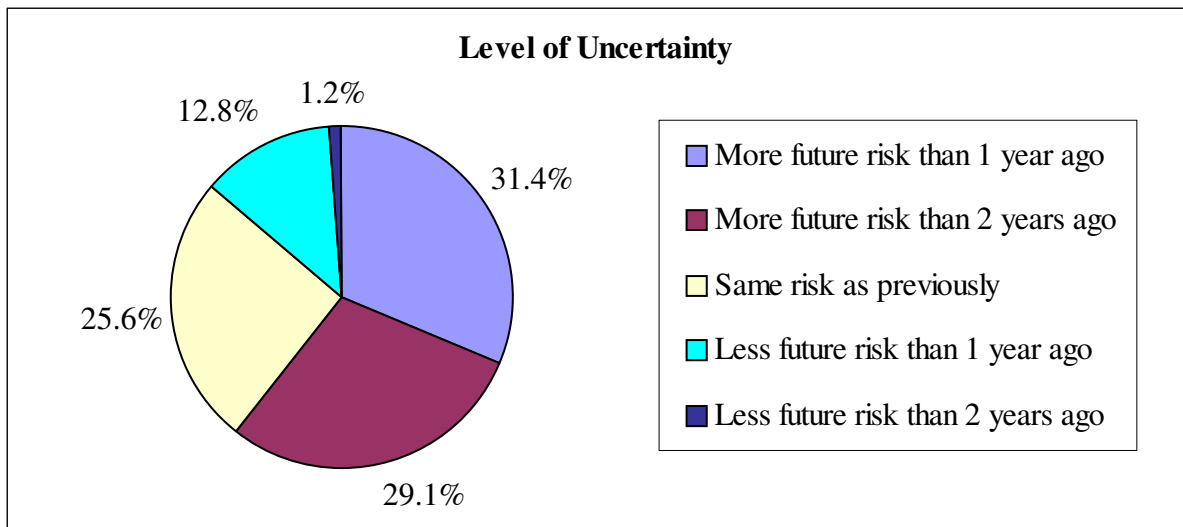


Figure 1: Level of Uncertainty

To provide a better understanding of how uncertainty is impacting companies today, results of the following questions are revealed throughout this report:

- What correlation exists between company size and uncertainty?
- What correlation exists between the scope of a person’s job and uncertainty?
- What areas of the supply chain are creating the most uncertainty?
- What specific supply chain areas are respondents working on to reduce their level of uncertainty?
- How and to what extent is uncertainty impacting respondents’ supply chains?
- How are respondents dealing with uncertainty in their supply chains?
- What solutions and innovations have been used to reduce uncertainty?

Gone are the days when only history was used to understand the future. Today, uncertainty is certain.

Respondent Demographics

Throughout the survey, industry segments of survey respondents are very diverse. The highest percentage of respondents is from the food and beverage industry, followed by pharmaceutical and chemical industry, and then the transportation/Logistics Service Provider (LSP) industry. *Figure 2* shows the distribution of respondents by industry.

Percentage of Respondents By Industry			
Industry	%	Industry	%
Food and Beverage	12.6%	Industrial Equipment	1.2%
Pharmaceutical and Chemical	11.5%	Media, Printing and Publishing	1.2%
Transportation and Distribution LSP	10.3%	Outdoor Power Equipment	1.2%
Apparel	8.1%	Telecommunication	1.2%
Hobby, Toys and Sporting Goods	8.1%	Mass Retail	1.2%
Department and Discount Stores	5.8%	Commercial Furniture	1.2%
Home Products	5.8%	Retail Drug	1.2%
Computer Hardware/Software/Internet	4.6%	Wind Energy	1.2%
Healthcare/Medical	4.6%	Packaging	1.2%
Hardware and Home Improvement	2.3%	Food Service Disposals	1.2%
Restaurant, Hospitality and Lodging	2.3%	Home Furnishing/Accessories	1.2%
Paper and Paper-Based Products	2.3%	Consumer Goods	1.2%
Manufacturing	2.3%	Consulting	1.2%
Agriculture, Forestry and Fishing	1.2%	Turf Products	1.2%
Entertainment and Recreation	1.2%	Wholesale Electronics	1.2%

Figure 2: Percentage of Respondents by Industry

The next survey demographic of interest is the relative size of companies that participated in terms of sales revenue (*Figure 3*). Once again, there is a good variation of companies between the “mega” organizations (with more than \$25 billion annual revenue) and the small companies (with less than \$250 million annual revenue).

The highest percentage of respondents were from the food and beverage industry.

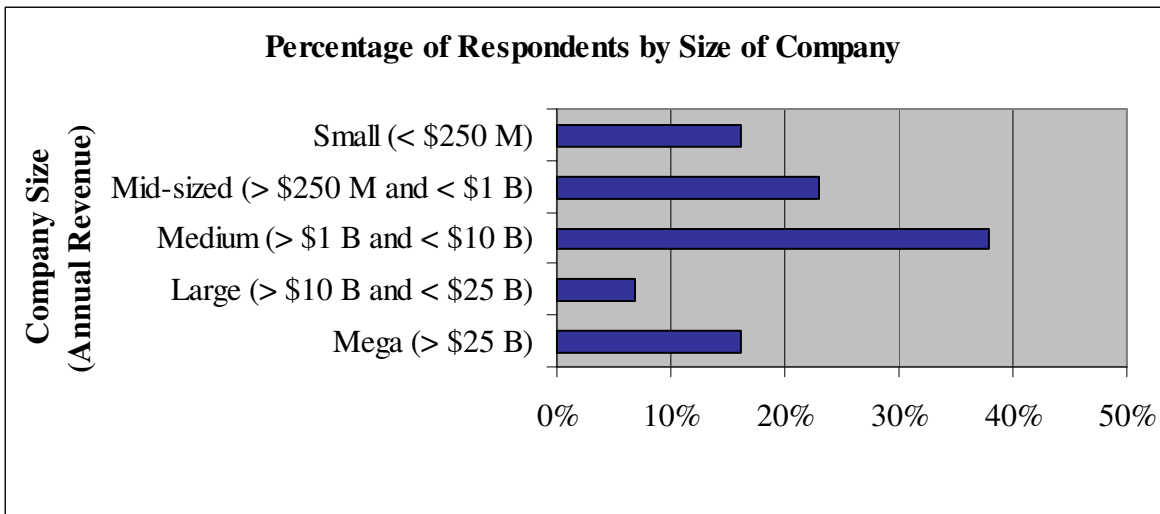


Figure 3: Percentage of Respondents by Size of Company

In order to understand the respondents’ scope of responsibilities, the survey inquired about the capacity – global, regional, country or site-specific – of their job function. *Figure 4* shows the responses. Nearly half of all respondents have global responsibilities, 30% are country focused, and 21% have a regional scope, such as North America or Asia.

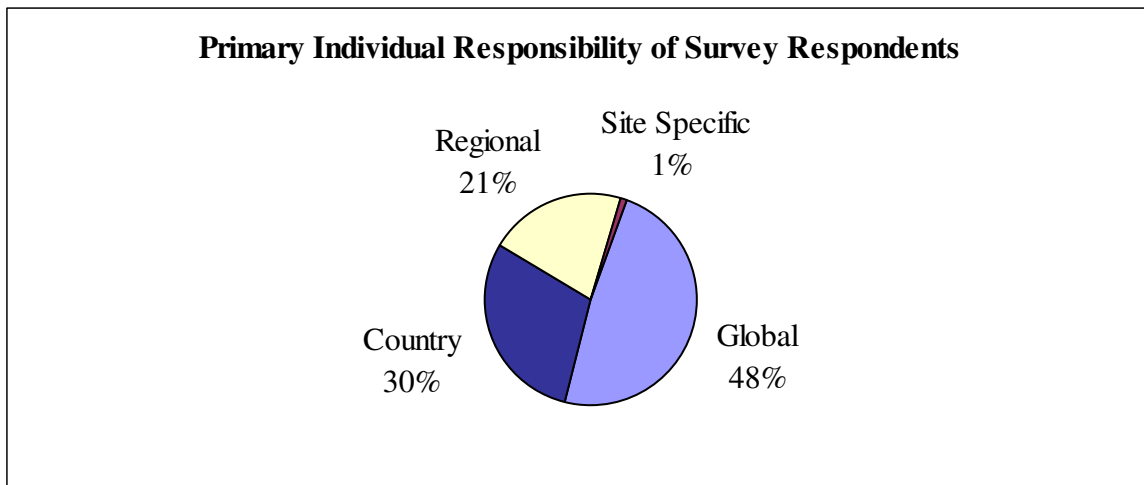


Figure 4: Primary Individual Responsibility of Survey Respondents

Uncertainty’s Correlation with Supply Chain

To obtain a better understanding of the correlation between the size of a company and the extent of uncertainty that survey respondents feel about their supply chains, the Consortium has examined the survey data and finds that the mega companies clearly feel most uncertain (78%) compared to one or two years ago. Small and mid-sized companies are the least uncertain (54% and 55% respectively). Overall, the data suggests that the larger the company, the more complexity, which creates more areas for uncertainty.

There is also a connection between the scope of a person’s job and the extent of uncertainty.

There is also a connection between the scope of a person’s job and the extent of uncertainty being felt. In this case, responses indicate that a broader scope of responsibility causes an increased level of uncertainty. Results show that 87% of individuals with global or regional responsibilities are more uncertain now than in the previous two years.

Looking across their supply chains, respondents also see the most uncertainty globally. Somewhat surprisingly, the second highest response was at the country level, showing that many respondents are feeling the burden of uncertainty in specific country locations (*Figure 5*).

On a scale from 1 to 5, respondents rank the areas of the supply chain that they are most concerned about being impacted by uncertainty. As *Figure 6* shows, planning is predicted to be the area most affected by uncertainty, followed by sourcing, sales and customer service, and transportation.

The planning and sales areas are highly dependent on historical data and forecasts. With the last two years being uniquely difficult and impossible to predict, it is not surprising that planning and sales are high on the list. Sourcing and working with suppliers is also simple to understand, as the economy has made supplier relationships very difficult to maintain and a significant number of companies have gone out of business.

A further breakdown of the data (*Figure 7*) reveals the supply chain areas of greatest concern and the percentage of respondents who were either “highly concerned” or “very highly concerned.”

Geographical Uncertainty	
Responses	Weighted Rank
	(Score)
Globally	1 (257)
Country Level	2 (242)
Regionally	3 (209)
Site Specific	4 (152)

Figure 5: Geographic Uncertainty (Ranked)

Supply Chain Areas of Greatest Concern	
Area	Weighted Score
Planning	3.59
Sourcing	3.33
Sales and Customer Service	3.22
Transportation	3.20
Manufacturing	2.91
Security	2.77
Distribution	2.66
Technology	2.49
Finance	2.43

Figure 6: Areas of Greatest Concern (Scale 1-5)

Supply Chain Areas of Greatest Concern		
Area	High	Very High
Planning	32.2%	25.3%
Sourcing	35.6%	13.8%
Sales and Customer Service	19.5%	18.4%
Transportation	28.7%	13.8%

Figure 7: Areas of Greatest Concern

Planning is predicted to be the area most impacted by uncertainty, followed by sourcing, sales and customer service, and transportation.

Planning for Uncertainty

In regards to which supply chain processes respondents are working on to reduce uncertainty, this section takes a closer look at the responses in the areas of planning, sourcing, manufacturing, transportation, distribution, sales and customer service, finance, technology and security and government regulations. Detailed charts of all responses are located in the appendix.

Figure 8 shows the percentage of companies that are working on each area. Topping the list of initiatives is understanding and working to reduce the impact of government regulations, followed by forecasting as a planning function, major technology implementation, and two initiatives related to inventory management. All of these initiatives are strongly impacted by uncertainty, and when executed well, can be effective at reducing uncertainty.

The majority of companies have initiatives for government regulations and mandates, forecasting, and supply chain systems to help reduce uncertainty.

Area	Initiative	Percentage of Respondents
Government Regulations	Government Regulations and Mandates	78%
Planning	Forecasting	74%
Technology	ERP, WMS and TMS	72%
Planning	Inventory Optimization	71%
Finance	Inventory Turns	65%
Sales and Customer Service	Service Supply Chain	62%
Sourcing	SRM	61%
Transportation	Transportation Network Design	60%
Transportation	Mode Optimization	60%
Distribution	Internal Distribution Process Improvement	60%
Sourcing	Data Exchange with Suppliers	58%
Distribution	Distribution Network Design	58%
Planning	Demand Planning Technology	56%
Sourcing	Supplier Metrics and Mfg Processes	55%
Technology	Planning Technology	55%
Manufacturing	Labor, Material and Energy Costs	54%
Transportation	Internal Transportation Process Improvement	54%
Manufacturing	Internal Mfg Process Improvement	52%
Sales and Customer Service	Changing Customer Practices	51%

Figure 8: Percentage of Respondents Working On Initiatives to Reduce Uncertainty

In order to gain a better understanding of how and to what extent uncertainty is impacting companies' supply chains, respondents rate each area of impact as high, medium, low or none. *Figure 9* through *Figure 15* present the data for uncertainty that:

- Adds costs
- Increases lead-time
- Decreases customer satisfaction
- Reduces speed to market
- Increases inventory
- Increases capital spending
- Slows growth to new markets

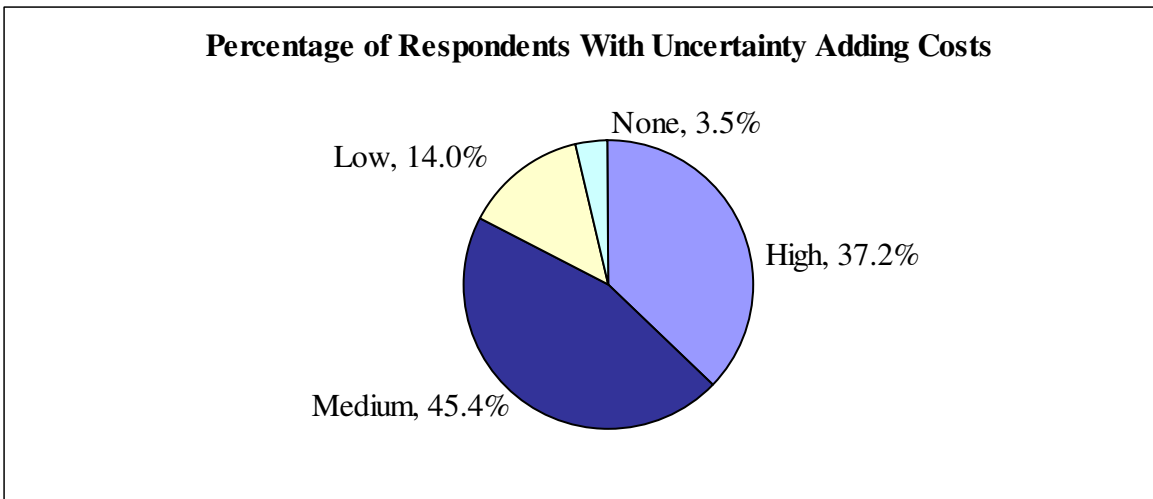


Figure 9: Uncertainty Adding Costs

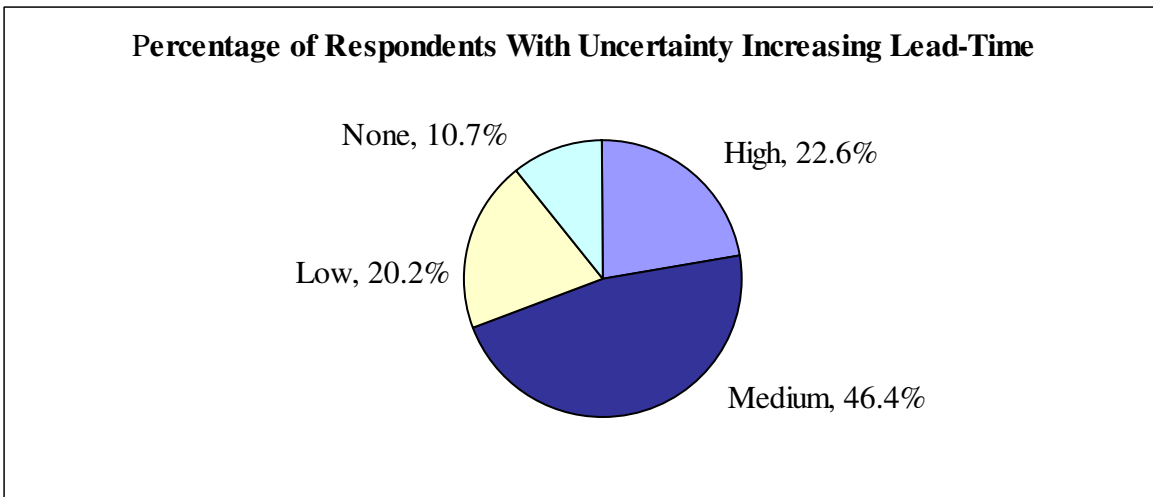


Figure 10: Uncertainty Increasing Lead-Time

The percentage of respondents with uncertainty highly increasing lead-time is 22.6%.

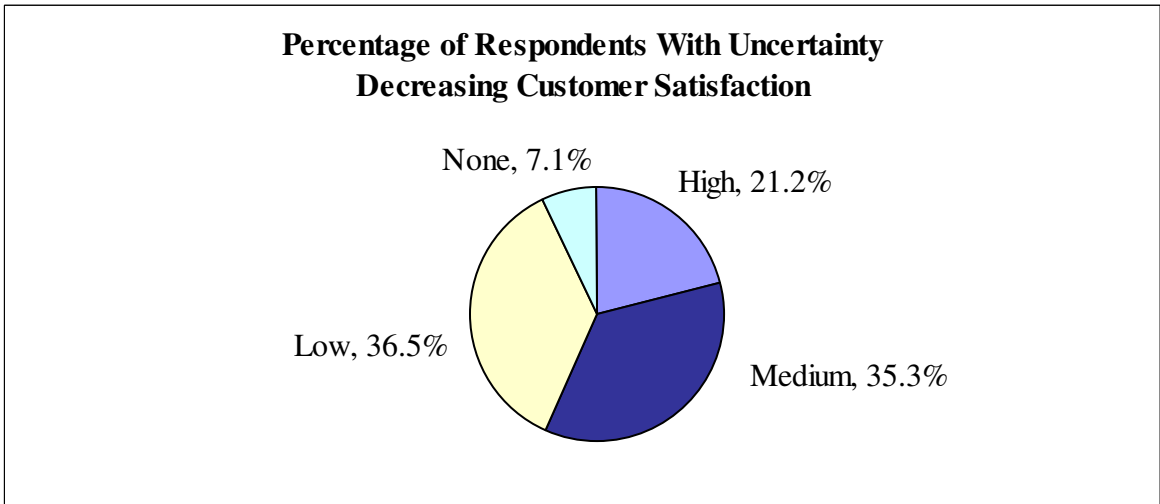


Figure 11: Uncertainty Decreasing Customer Satisfaction

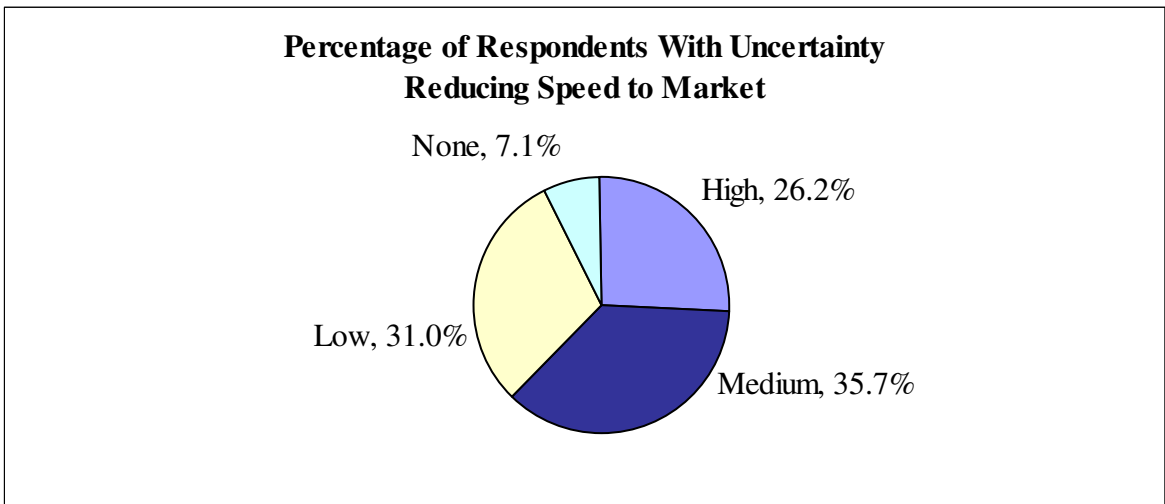


Figure 12: Uncertainty Reducing Speed to Market

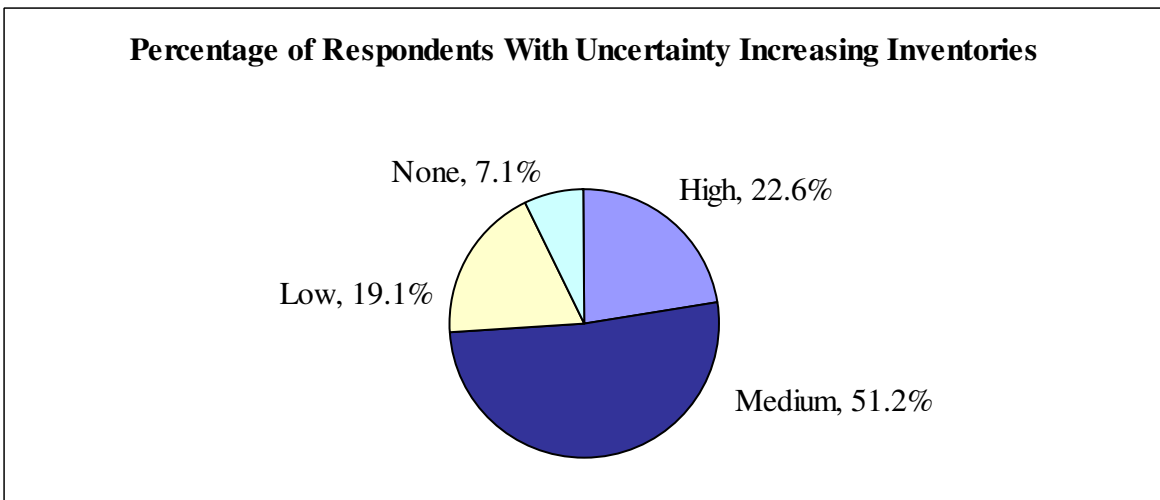


Figure 13: Uncertainty Increasing Inventories

Only 7.1% of respondents indicate that uncertainty has not reduced speed to market.

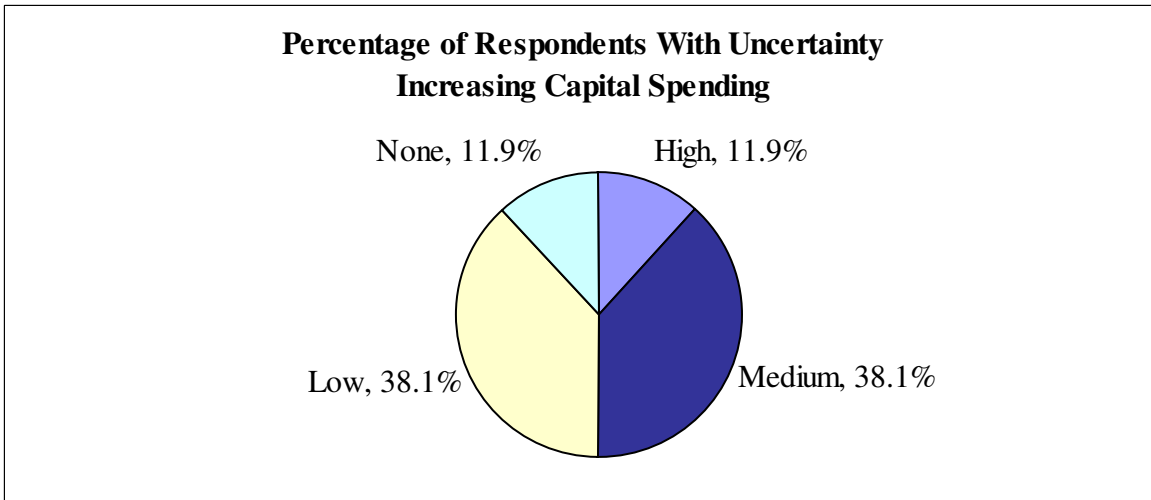


Figure 14: Uncertainty Increasing Capital Spending

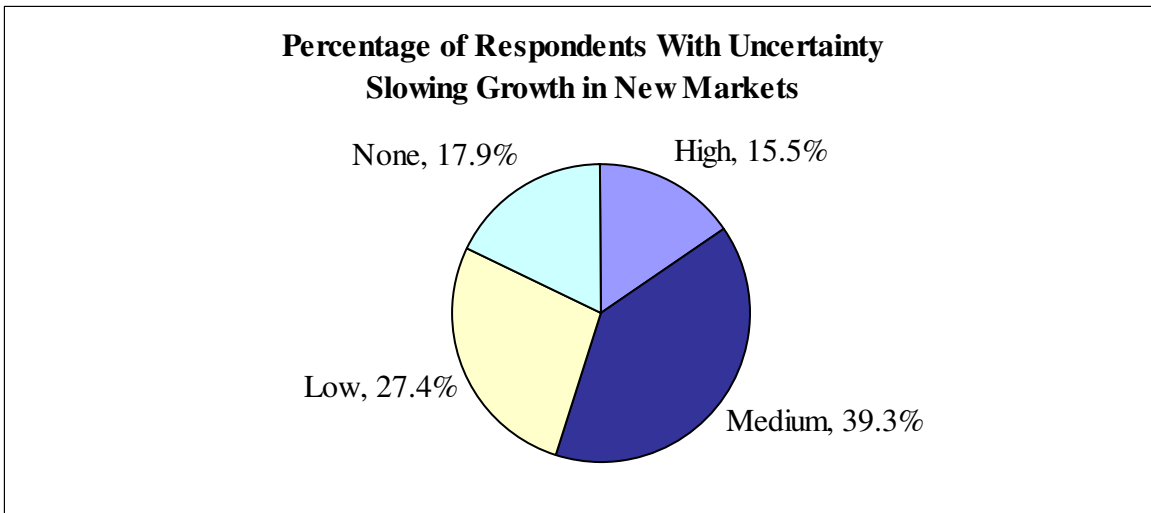


Figure 15: Uncertainty Slowing Growth in New Markets

Uncertainty was found to impact the supply chain the most in four ways:

- 1) Adding cost;
- 2) Increasing inventory levels;
- 3) Increasing lead-times; and
- 4) Reducing speed to market.

Not understanding the past and present, which reduces the ability to predict the future for supply chain practices, clearly adds steps and time to the process, as well as equating to higher costs. Inventory levels and lead-times are increased to cover for the uncertainty of demand. Speed to market is impacted by increased inventory and the ability to make quick decisions about what products to put where in order to optimize efficiency and customer requirements.

The magnitude of the impact is very interesting, with more than 37% saying that uncertainty is highly likely to add cost. Forty-five percent rate the impact as medium. In general, 60-80% of companies indicate that there is a high to medium impact from a cost and time standpoint due to uncertainty.

Not understanding the past and present clearly adds steps and time to the process, equating to higher costs.

As part of the survey, participants were asked to describe how they are dealing with uncertainty in their supply chains. The following list captures some of their responses. (*See page 15 for additional ways companies are dealing with uncertainty.*)

- Have focused, small teams of the right people to drive closure and minimize the risk
- Working to become proactive and agile by improving planning systems and reducing cycle times
- Trying to balance network design, customer demand volatility, and customer satisfaction
- Increasing focus on planning, operational excellence, technology implementation, and collaboration
- Improving the recognition of risk profiles and building contingency planning capabilities
- Developing and implementing a risk management strategy and monitor the condition of the supply chain regularly
- Working on backup suppliers and freight companies to reduce supply risk/uncertainty
- Focusing on supplier development, near-shoring strategy; lean and partnering
- Proactively looking at areas of the supply chain where we have control and drive waste out of areas

Some participants are dealing with uncertainty by improving the recognition of risk profiles and building contingency planning capabilities.

Below are a few specific solutions or innovations respondents are using to reduce uncertainty across the supply chain. (*See page 16 for additional solutions.*)

- SIOP, demand planning improvements, and better forecast accuracy through formalized risk management processes and risk sensing
- Using real-time demand/supply planning and matching, and supplier and customer collaboration to gauge economic conditions and reduce unpredictability
- Staying up-to-date on rapid regulatory changes
- Practicing lean practices to delay final product identification further down the process
- Converted operations to customer (made-to-order) model and reduced inventory requirements
- Purchase software solutions and redesign or reconfigure the supply network for future growth and flexibility
- Expanded use of ERP data and capabilities across the supply chain
- Updating and implementing software tools and techniques such as WMS, TMS, SRM, APO and SaaS

In addition to specific solutions and innovations, companies are including uncertainty in their strategic planning process. More than two-thirds of respondents say that uncertainty is a part of their process (*Figure 16*). And in relation to company size, the larger the company, the more likely it is to have uncertainty as part of strategic planning.

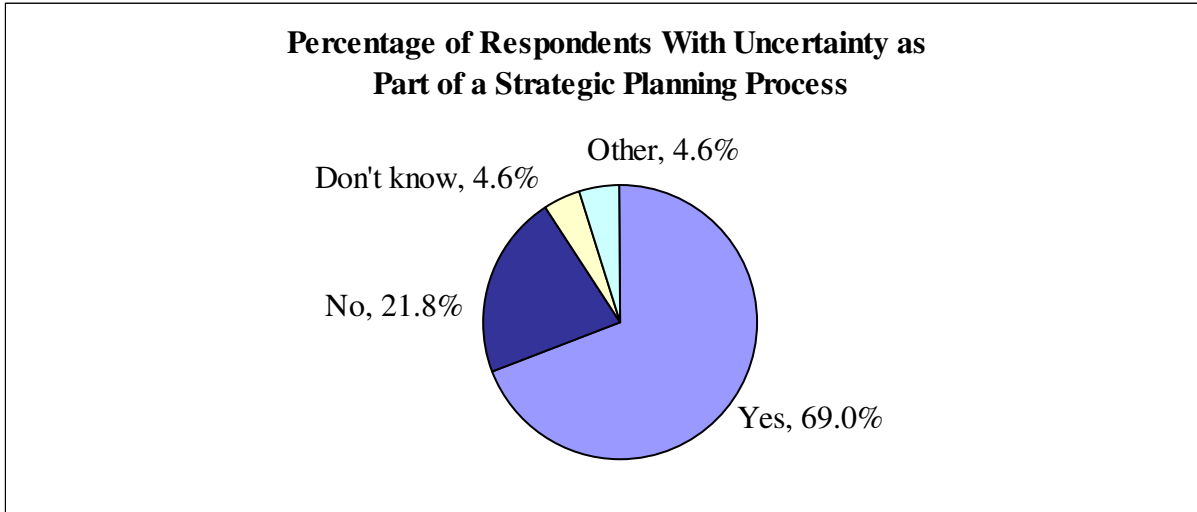


Figure 16: Percentage of Respondents With Uncertainty as Part of Strategic Planning

Summary and Conclusion

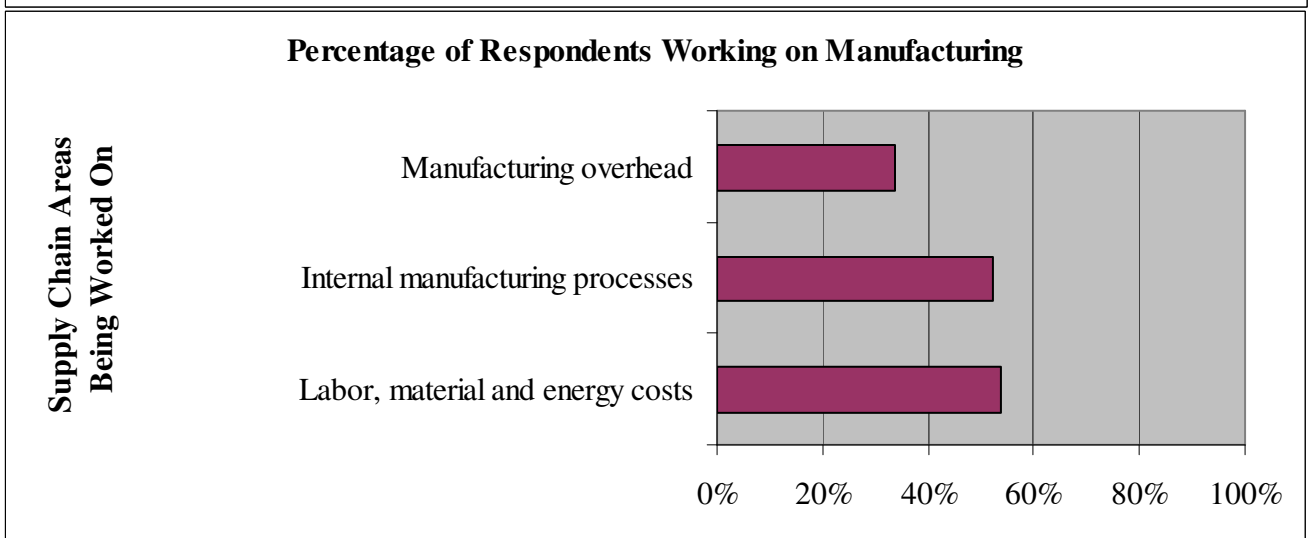
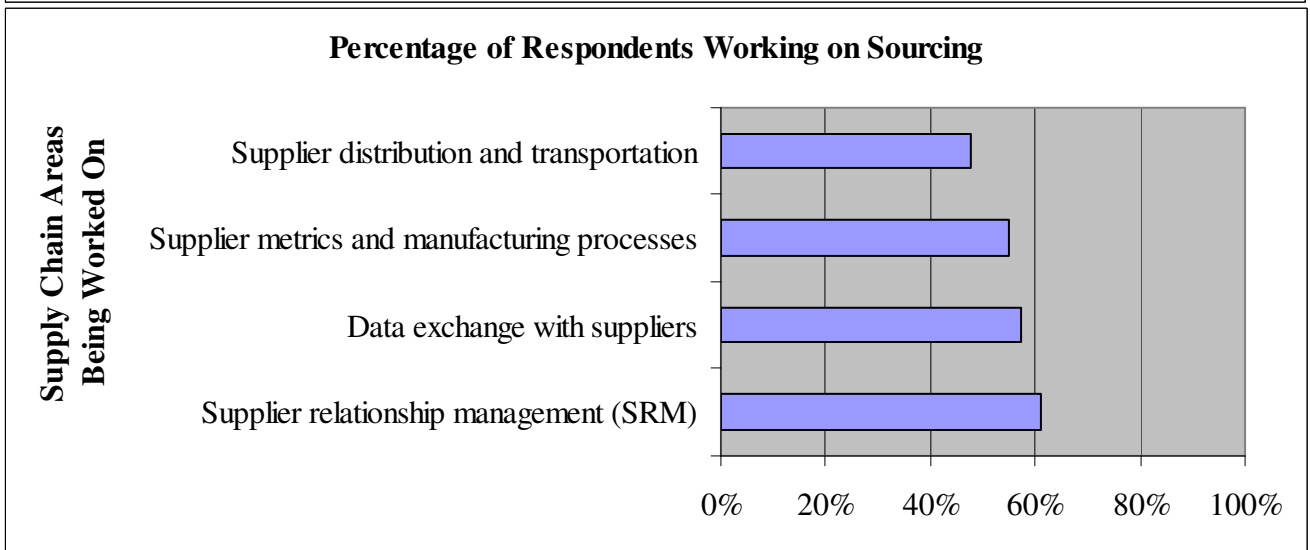
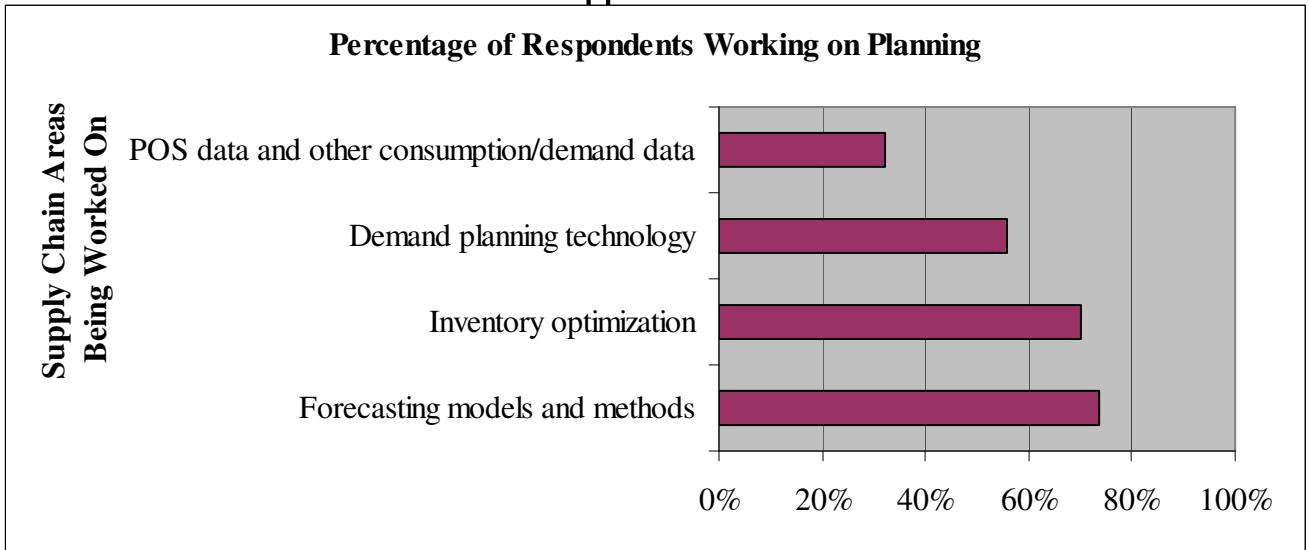
This report highlights many findings from the *Uncertainty is Certain* survey. To summarize:

1. Supply chain leaders are more uncertain now than the previous two years by a wide margin.
 - A. The largest companies have leaders who are the most uncertain about future outcomes.
 - B. The leaders with global responsibilities are the most uncertain about their supply chains in the future.
 - C. In general, there is more uncertainty at the global and country level than others.
2. The greatest uncertainty is in the following supply chain functions: planning, sourcing, sales and customer service, and transportation.
3. Initiatives impacting government regulations and mandates, forecasting, technology application and inventory are the most often selected for reducing uncertainty.
4. Uncertainty impacts supply chain costs, inventory levels, lead-times and speed to market the most.
5. Survey participants have many ways of dealing with uncertainty and are employing a variety of specific solutions.
6. A majority of companies consider uncertainty in their strategic planning process in some way.

Therefore, it is clear that uncertainty is certain for the majority of participants who took this survey. The magnitude of their concern for the future of their supply chains and uncertainty's impact on important measures of success is a red flag for everyone in the supply chain field.

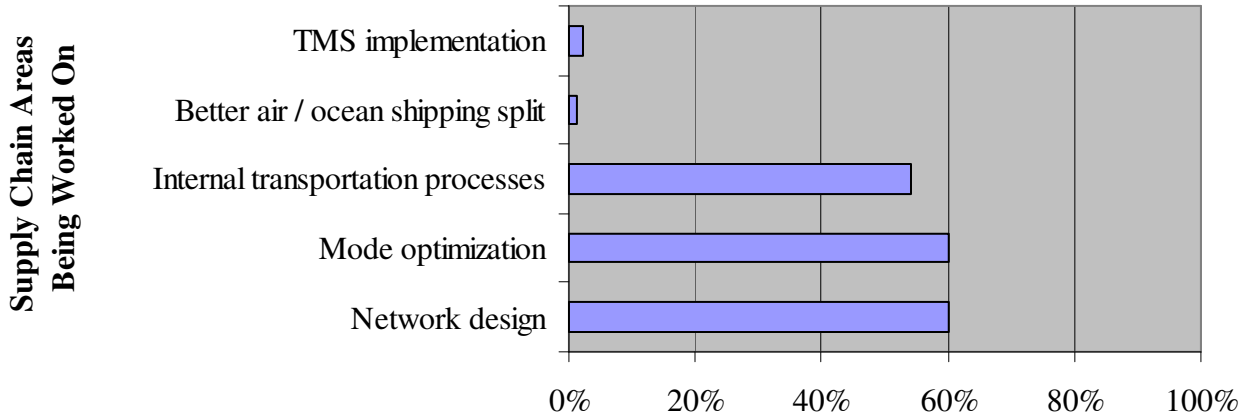
More than two-thirds of respondents say that uncertainty is a part of their strategic planning process.

Appendix

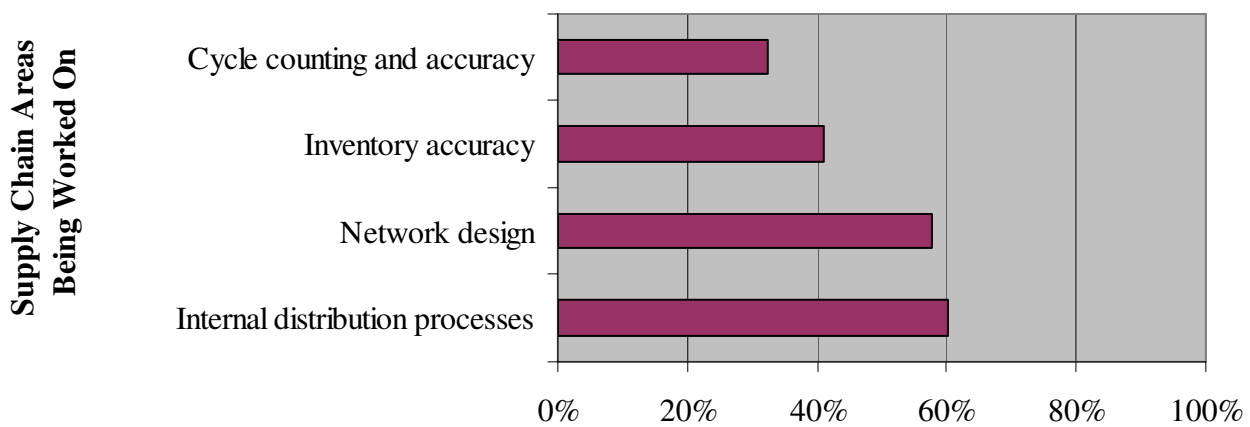


To reduce uncertainty, more than 70% of respondents are working on forecasting models and methods.

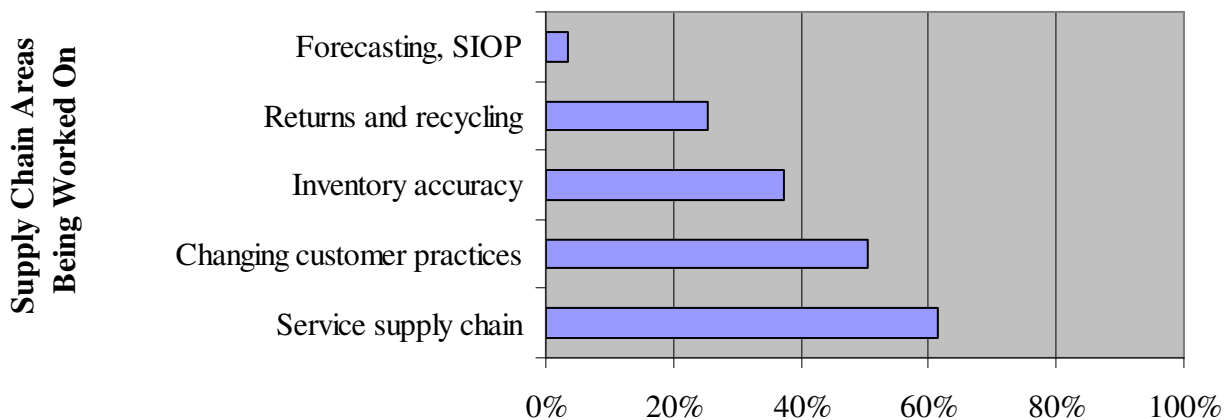
Percentage of Respondents Working on Transportation



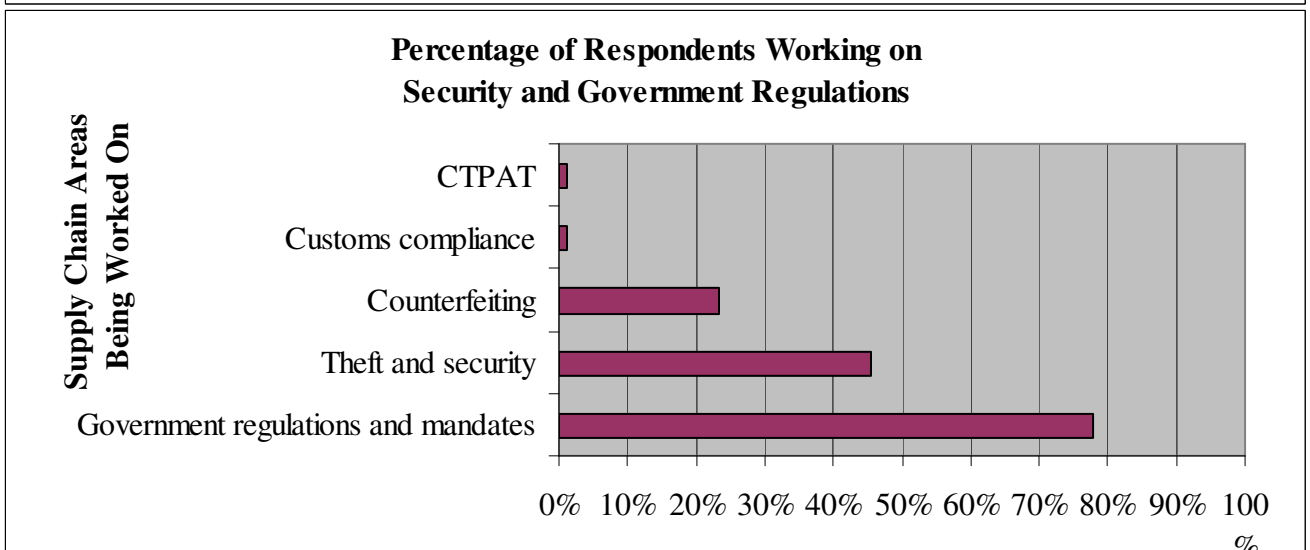
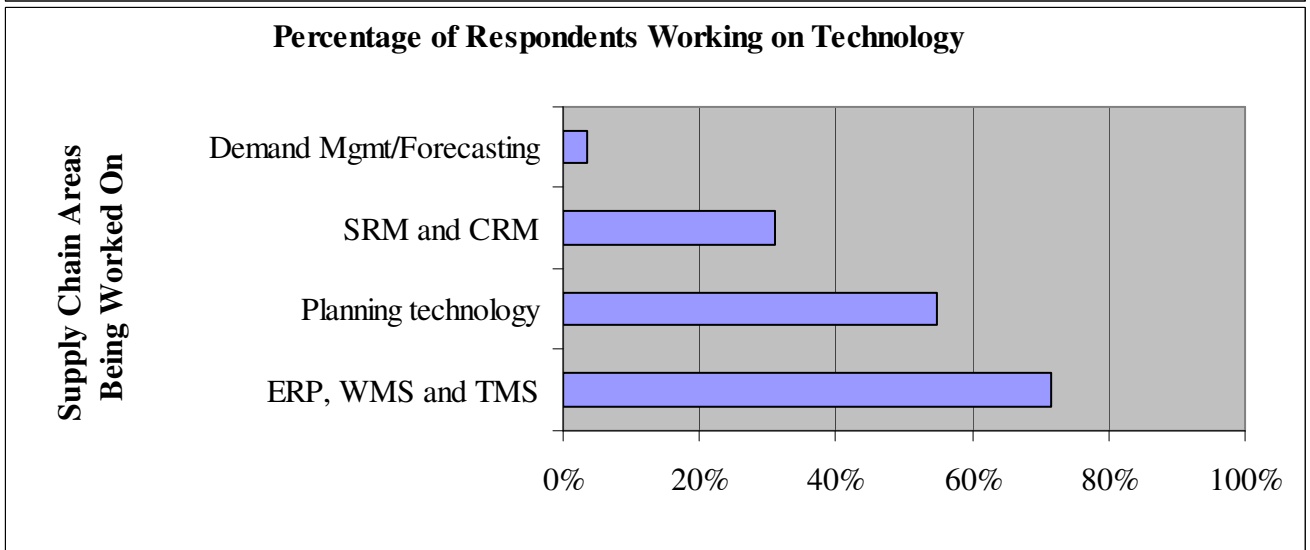
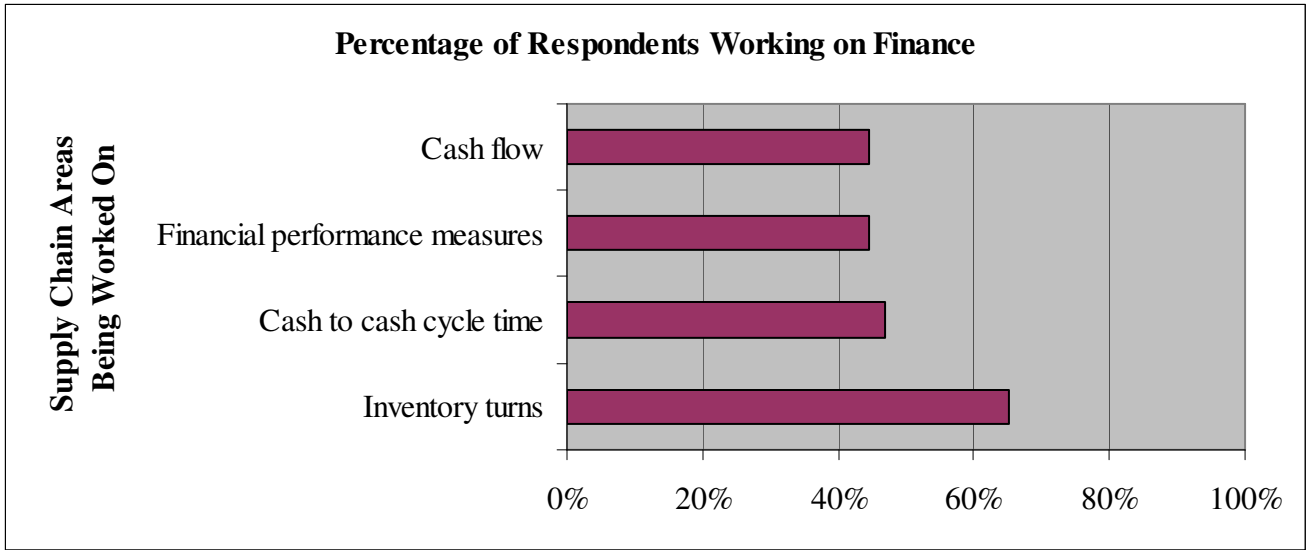
Percentage of Respondents Working on Distribution



Percentage of Respondents Working on Sales and Customer Service



About 60% of respondents are working on transportation network design.



Less than 5% of respondents are working on CTPAT and customs compliance.

How Companies Are Dealing With Uncertainty

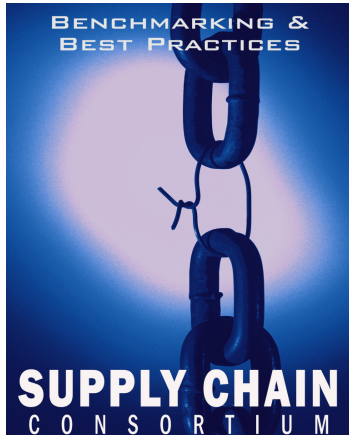
Have focused, small teams of the right people to drive closure and minimize the risk
By gaining operational control on more 'unknown' areas from vendor areas to deliveries
Have an integrated supply chain team that focuses on end-to-end supply chain, especially weaknesses
Working with consultants to identify, define, prioritize, and action opportunities to improve
Planning and evaluating market trends based on sales trends and economic factors
Working to become proactive and agile by improving planning systems and reducing cycle times
Trying to balance network design, customer demand volatility and customer satisfaction
Demand visibility for a fast growing company is uncertain, requiring very flexible and scalable
More planning and ROI studying before decisions are made, less new items more optimization
Holding short- and long-term planning meetings
Perform more frequent cross-functional planning, discussion and strategy sessions; focus on basics
Overall planning, communication and execution efforts are being worked on for improvement
Focus on improving inventory turns, reducing costs and improving service to stores
Lots of focus on better-optimized demand and supply planning; ERP conversion underway
Increasing focus on planning and operational execution excellence
Hold meetings regularly with senior stakeholders in and out of company to determine best practices
Increasing sales efforts and product offerings
Moving forward very cautiously with major efforts focused on sales and cash conservation
Improve the recognition of the risk profiles and building contingency planning capabilities
Building scenarios on what may be the challenges faced, then creating backup plans
Have developed and implemented a risk management strategy and monitor conditions regularly
Proactively evaluating more elements of risk and addressing issues by supplier
Place orders sooner, increase safety stock and partnering with key trading partners to mitigate
Working on backup suppliers and freight companies to reduce the supply risk/uncertainty
Focusing on supplier development, near-shoring strategy; lean and partnering
Managing the demand/supply and sourcing processes
Partnering with credible service providers; multi-year contract agreements to mitigate rate swings
Proactively looking at areas of opportunity where we have control and drive waste out of areas
Creating contingency plans and removing waste to provide a clear view and agility
Focusing on people, globalizing product supply, implementing ERP and APS, improving processes
Attempting to gain further control of the supply chain from original source to final user
Increasing flexibility in logistics network (distribution and transportation)
Getting rid of efficiency mandates as the first order of business and going back to speed to margin
Trying to determine how the new governmental healthcare reform may impact our customers
Working to shrink supply chain breadth and communize components
Utilizing technology, consultants, focus
Implementing technology improvements and collaboration
Primary short-term risk is domestic distribution for which we are supporting with our private fleet
Signing ocean contracts with major carriers that provide guarantees on equipment and vessel space

Overall, planning, communication and execution efforts are being worked on for improvement in order to deal with uncertainty.

Specific Solutions and Innovations of Respondents

Greater use of 3PLs and transactional pricing
Productivity standards in areas not covered before schedule revamping scheduled reviews of KPIs
Better assessment of market needs and adding measurements on KPIs and trends
Forecasting tools; increased risk assessment process
Implemented network rationalization into system
SIOP, demand planning, better forecasting practices
Real-time demand/supply planning
Better sales forecasting tools to predict volume by country
Manufacturing and planning systems, DBR, TOC, etc.
Networking with customers and industry peers to gauge economic conditions and improve forecasting
Improve forecasting techniques formalize supply chain risk management processes and risk sensing
Improve internal integration, planning technology, aligning with customers
New demand planning system being implemented, utilize more flow through, improve store costs
Demand planning/forecasting software implementation; supplier collaboration
Real-time demand/supply matching
Demand planning software and requirements planning software
Expanded use of safety stock
Staying up-to-date on the rapid regulatory changes
Backup supply options
Continue to build solid vendor relationships
Collaboration with partner suppliers to create a more robust set of contingencies
Better vendor contracting to have greater flexibility
Outsourcing and insourcing, technology improvements, visible measures all can see and understand
Collaborative management and elimination of waste in the supply chain
Delay final product identification further down the SCM from origin
Engineered standards, methods, LMS software, Lean Walks, contract pricing
Practicing lean principles and strengthening supplier relationships
Converted primary manufacturing operations to customer (made-to-order) model and reduced inventory
Shorter lead times, lower inventories
Working with supply chain network stakeholders to eliminate inefficient behaviors
Collaborating with customers and suppliers to reduce unpredictability
Expanded use of ERP data and systems capabilities
Implementation of demand forecast and replenishment systems, ERP, WMS
Purchase demand planning solution, redesign or reconfigure network for future growth and flexibility
SAP, APO, SRM, SAS
Updating and implementing TMS, ERP and RPM
Changing mode of transportation, working more closely with affiliates

Some respondents indicate they are backing up supply options and expanding use of safety stock to reduce uncertainty.



Benchmarking & Best Practices

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