



Detroit – Washington D. C.

A light gray, stylized world map is centered in the background of the slide, showing the outlines of continents and major landmasses.

OESA Automotive Supplier Barometer Focus on Supply Chain

The OESA Automotive Supplier Barometer is published with the support of Deloitte LLP.

Deloitte.

March 2-4, 2015
80 Survey Responses

OESA Automotive Supplier Barometer Summary

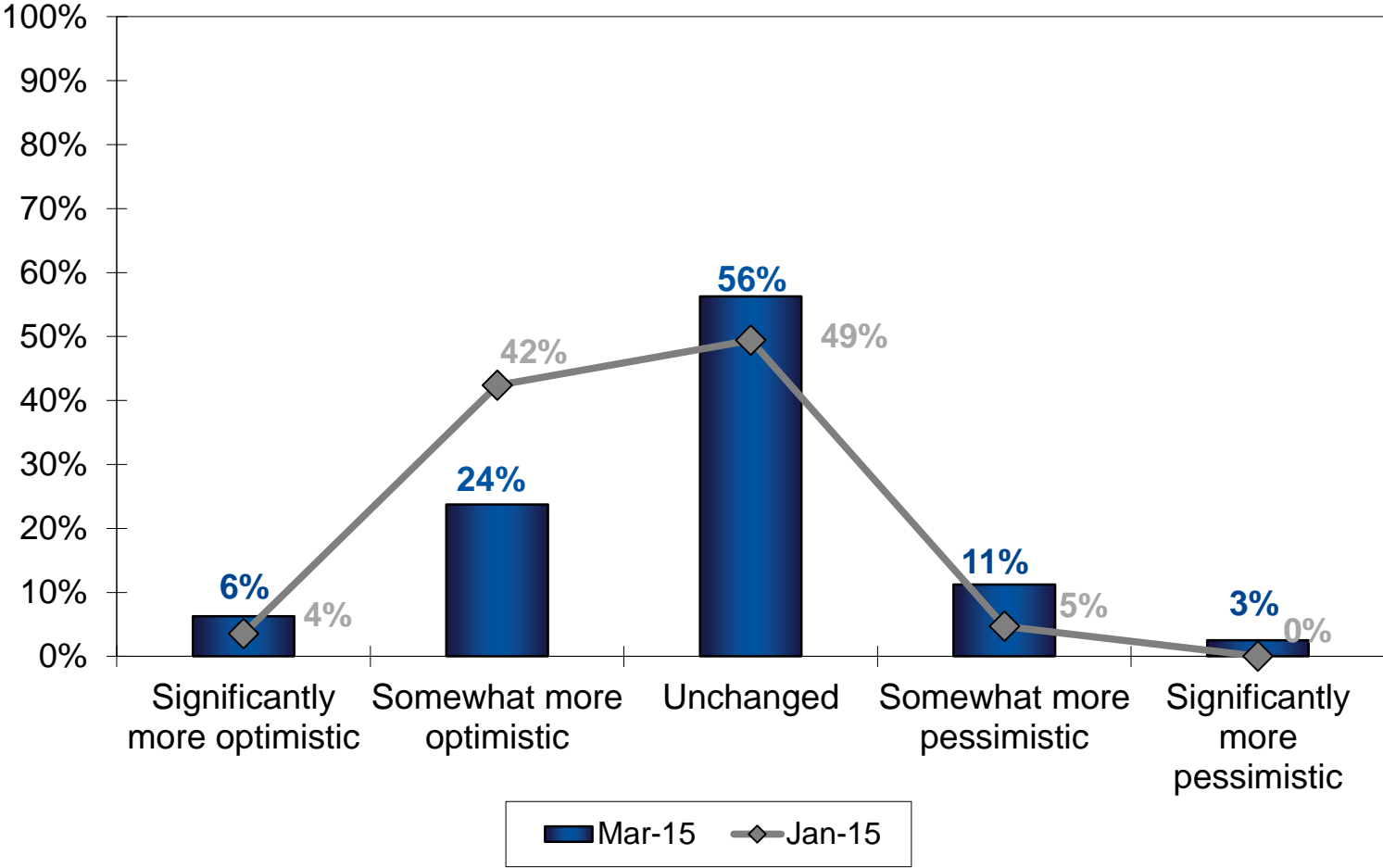
- The March OESA Automotive Supplier Barometer focused on supply chain related issues and strategies suppliers are deploying to manage supply chain disruptions and mitigate risk. OESA received 80 responses to this Barometer survey.
- The Supplier Sentiment Index (SSI) continues to remain positive at 51, though down from January's index of 61. Overall, optimism decreased, pessimism increased and the number of suppliers indicating an unchanged outlook increased. However, given these shifts, comments received from some suppliers indicate that an unchanged outlook can be and is still positive. The increase in pessimism is indicated from the mid-size companies with revenue of \$50 million to \$1 billion. (See pages 4-7)
- Supply chain constraints continue to be a topic of discussion. While the percent of respondents reporting that they do not have supply chain constraints fell year-over-year, 59 percent of suppliers continue to report sub-tier constraint concerns. For suppliers still seeing possible supply constraints, they are concentrated in the critical areas of powertrain, electrical and chassis.(See pages 8-11)
- One goal of this Barometer was to better understand the occurrence and impact of possible supply chain scenarios to business. Overall, receiving late customer engineering change orders was rated the highest in probability of occurrence and near the top in terms of severity of impact to operations, placing this scenario in the upper-right quadrant of scenarios to manage. Supplier comments that were provided support the problematic nature. The good news is that sub-tier financial distress was rated lowest in both occurrence and severity. For Tier2 and lower suppliers, long-lead product delivery constraints surfaces as another area to watch. (See pages 12-15)
- The primary actions that suppliers are taking to mitigate supply chain risk include increasing inventory and expediting shipments; both activities up significantly over last year. Another strategy is the simulation of supply chain disruptions, not significant in terms of number of suppliers in this activity, but the change is noteworthy. (See pages 16-17)

OESA Automotive Supplier Barometer

Summary (continued)

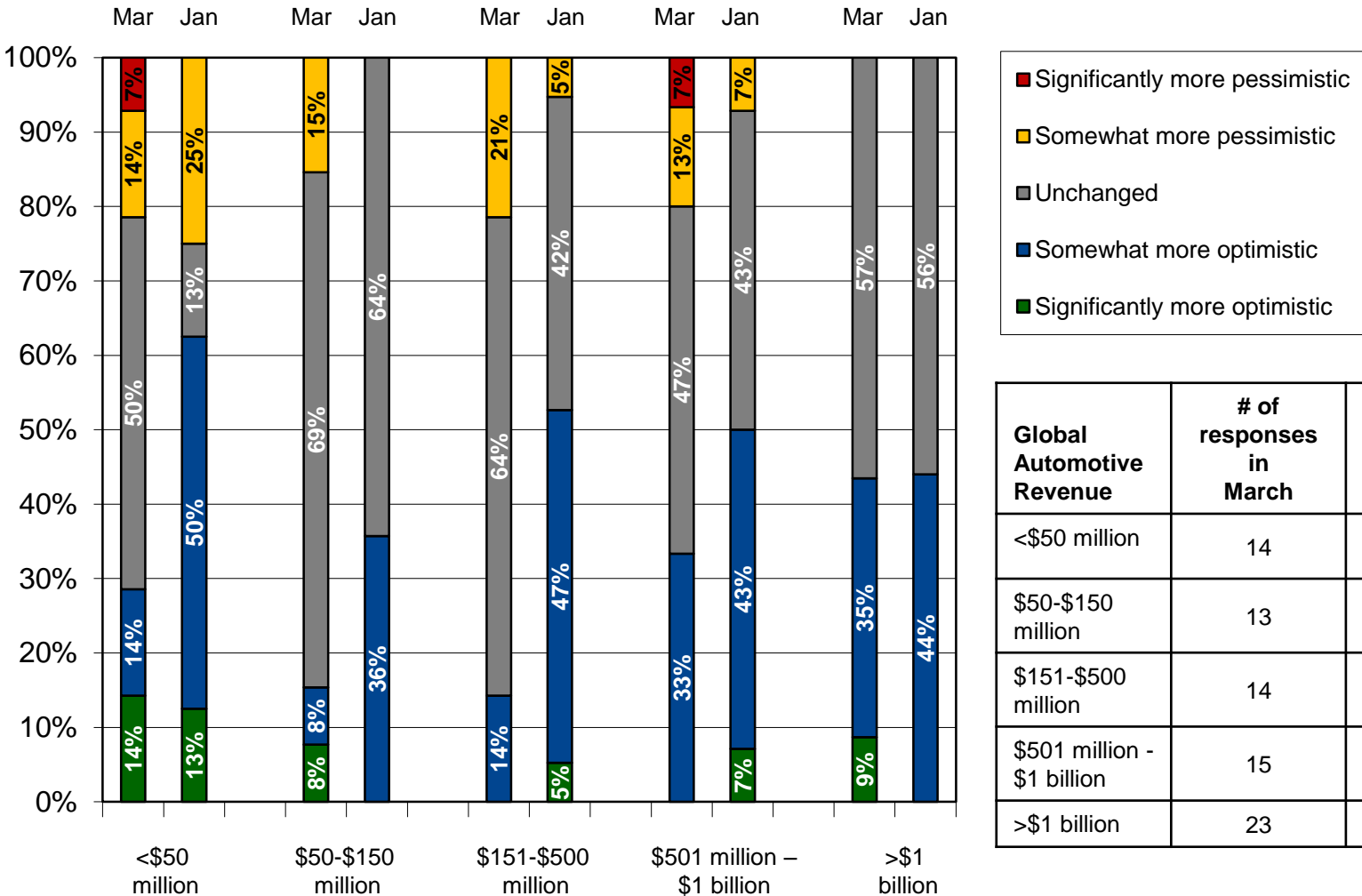
- As an alternative to adding in-house manufacturing capacity 32 percent of respondents indicated their company would consider out-sourcing or subcontracting work when necessary volumes are reached, compared with 41 percent in 2011. For 68 percent of respondents, out-sourcing is either not anticipated, unlikely or not a strategic fit, compared with 59 percent in 2011. (See page 18)
- Suppliers are looking to increase sub-tier capacity or capabilities around supplier locations/footprint, system and component offerings (where electronics was more often noted), supplier/personnel experience and expertise, raw material resources and tooling/machining needs. (See pages 19-20)
- Increasing inventory and expediting shipments along with the use of other ports are reflected in the resolution and mitigation of West Coast labor dispute disruptions, whereby 79 percent of survey respondents import/export out of West Coast ports. For supplier programs that have been impacted by the labor disruptions, the three areas seeing the largest increases in incremental costs are inventory, inbound transportation and general management manhours. The majority (70 percent) of these suppliers expect to recover little or none of these additional costs. (See pages 21-25)
- Overall, the percent of North American suppliers having no sub-tier suppliers on their watch lists declined year-over-year between 2012 and 2014. However, this year, there is an increase in the number of suppliers reporting 3 to 5 percent of their suppliers are on a watch list. This was driven primarily by quality and delivery performance. (See pages 26-27)

Describe the general twelve month outlook for your business. Over the past two months, has your opinion become:



Barometer Results

By Company Revenue



Global Automotive Revenue	# of responses in March	# of responses in January
<\$50 million	14	8
\$50-\$150 million	13	14
\$151-\$500 million	14	19
\$501 million - \$1 billion	15	14
>\$1 billion	23	25



Comments: Describe the general twelve month outlook for your business. Over the past two months, has your opinion become...

Significantly More Optimistic

- Passenger car business is up, but commercial vehicle is beyond busy.

Somewhat More Optimistic

- Car sales have been strong especially considering the bad weather.
- The industry continues to grow in NA. We see no sign of a slow down in the next 18 months.

Unchanged

- Unchanged but strongly positive.
- We have been cautiously positive.
- Significant opportunities possible but one never knows if they will ultimately slide into 2016.
- Completing restructuring process.
- See some weakness in U.S. market. May just meet 2014 level which is good but not a sixth straight year of gains.
- Continue to see orders tie-up closely with our plan established at end of 2014.
- I was already somewhat optimistic.

Somewhat More Pessimistic

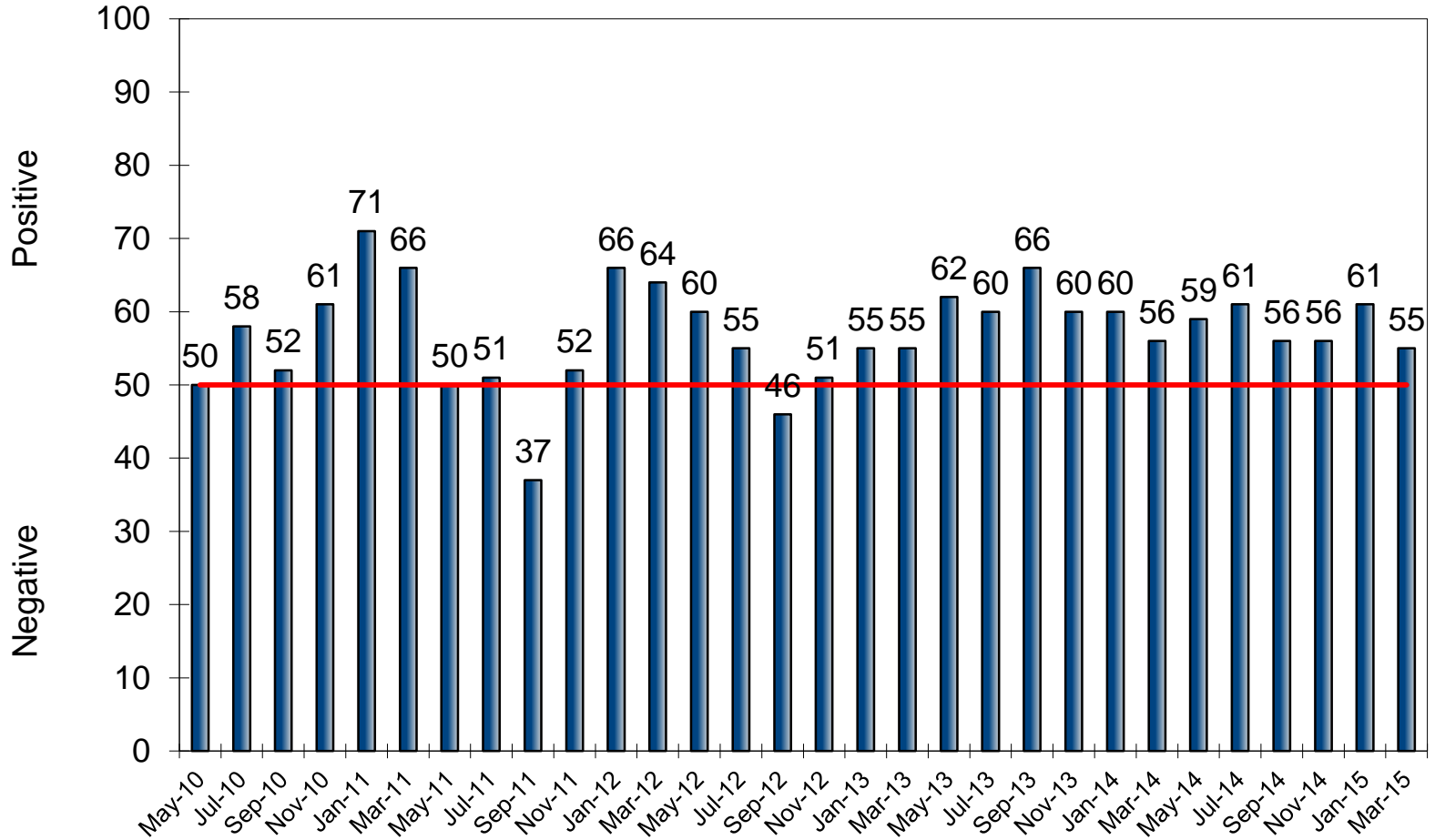
- Worried about OEMs inventory levels.

Significantly More Pessimistic

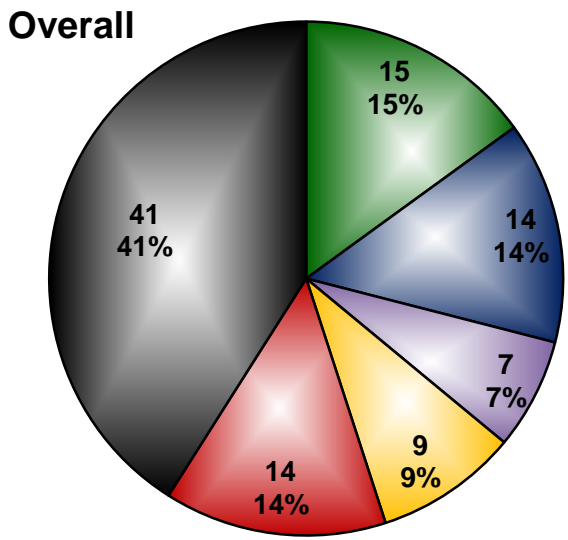
- Due to a drop in our non-auto segments.

OESA Automotive Supplier Sentiment Index

Compared to two months ago,
how has your 12 month outlook changed?



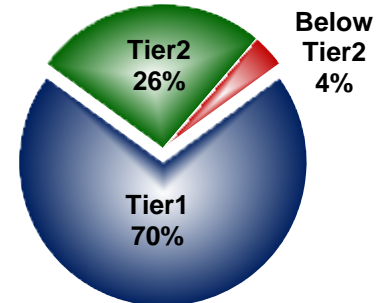
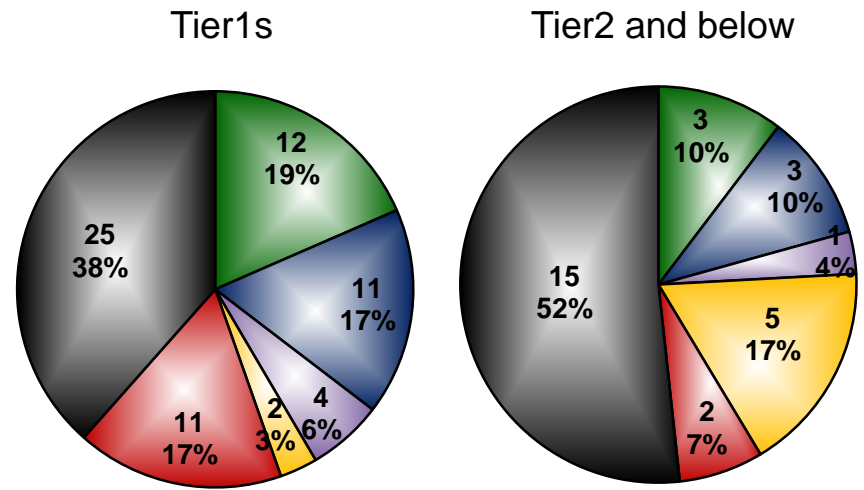
There has been a great amount of discussion about sourcing constraints down through the supply chain. What system area(s) is/are your most significant supply chain constraint(s)?



2015

- Powertrain
- Chassis
- Exterior
- Interior/HVAC
- Electrical/Electronics
- We don't have any supply chain constraints

2015 Sourcing Constraints by Tier



Tier structure of respondents

Note: Year-over-year overall constraints are shown in the appendix

No. of Responses = 79



Please describe in more detail your specific areas of concern.

(Some comments are shown in multiple component areas)

Electrical/Electronics Related Comments

- Working with limited OEM "partners."
- Material and port issues.
- Lead-time for electronics are increasing.
- Tooling and machines are a constraint with powertrain, semiconductor, back-end process is the biggest constraint on electronics, automotive demand is strong.
- Electronic sensor supply.
- West Coast port problem.
- Allocation of certain electronic components.
- Tier2 suppliers with the right engineering capabilities for motors and pumps might be limited at times.
- Now that the West Coast strike has been resolved we have no major supply chain restraints.
- Lack of human resources, cost of the resources.
- Long lead-time for certain components could generate issues on increasing volume scenario.
- Obsolescence is an area of concern.
- Materials.

Powertrain Related Comments

- Certain grades of 400 series stainless, monoliths for catalytic systems.
- OEM volumes have been exceeding contracted volumes for months; the trend continues. Our powertrain group is stressed because the demand for 4WD and AWD drivetrains has out paced OEM forecasts.
- Tooling and machines are a constraint with powertrain, semiconductor, back-end process is the biggest constraint on electronics, automotive demand is strong.
- West Coast port problem.
- The constraint is in sub-tier machining capacity and manning.

Please describe in more detail your specific areas of concern.

(Some comments are shown in multiple component areas)

(continued)

Powertrain Related Comments (continued)

- Exhaust and emission components.
- Imported high tolerance parts with sophisticated production processes.
- Castings - iron and aluminum based.
- Not many casting supplier in NA.
- Lower tier capacity constraints, both in manufacturing and tooling.
- We are a manufacturer of a thermoplastic polyetherimide material - due to factory shutdown for line upgrades the material is being rationed - thus keeping supply very tight; material is pretty common in several powertrain sub-systems and components.
- Materials.
- Highly qualified sources of machined parts capable of meeting stringent cleanliness requirements.

Chassis Related Comments

- OEM volumes have been exceeding contracted volumes for months; the trend continues. Our powertrain group is stressed because the demand for 4WD and AWD drivetrains has out paced OEM forecasts.
- Exhaust and emission components.
- Raw tubes.
- Imported high tolerance parts with sophisticated production processes.
- Material availability, especially aluminum on class A components.
- Air line fittings, logistics delay.
- Not many casting supplier in NA.
- Materials.



Please describe in more detail your specific areas of concern.

(Some comments are shown in multiple component areas)

(continued)

Exterior Related Comments

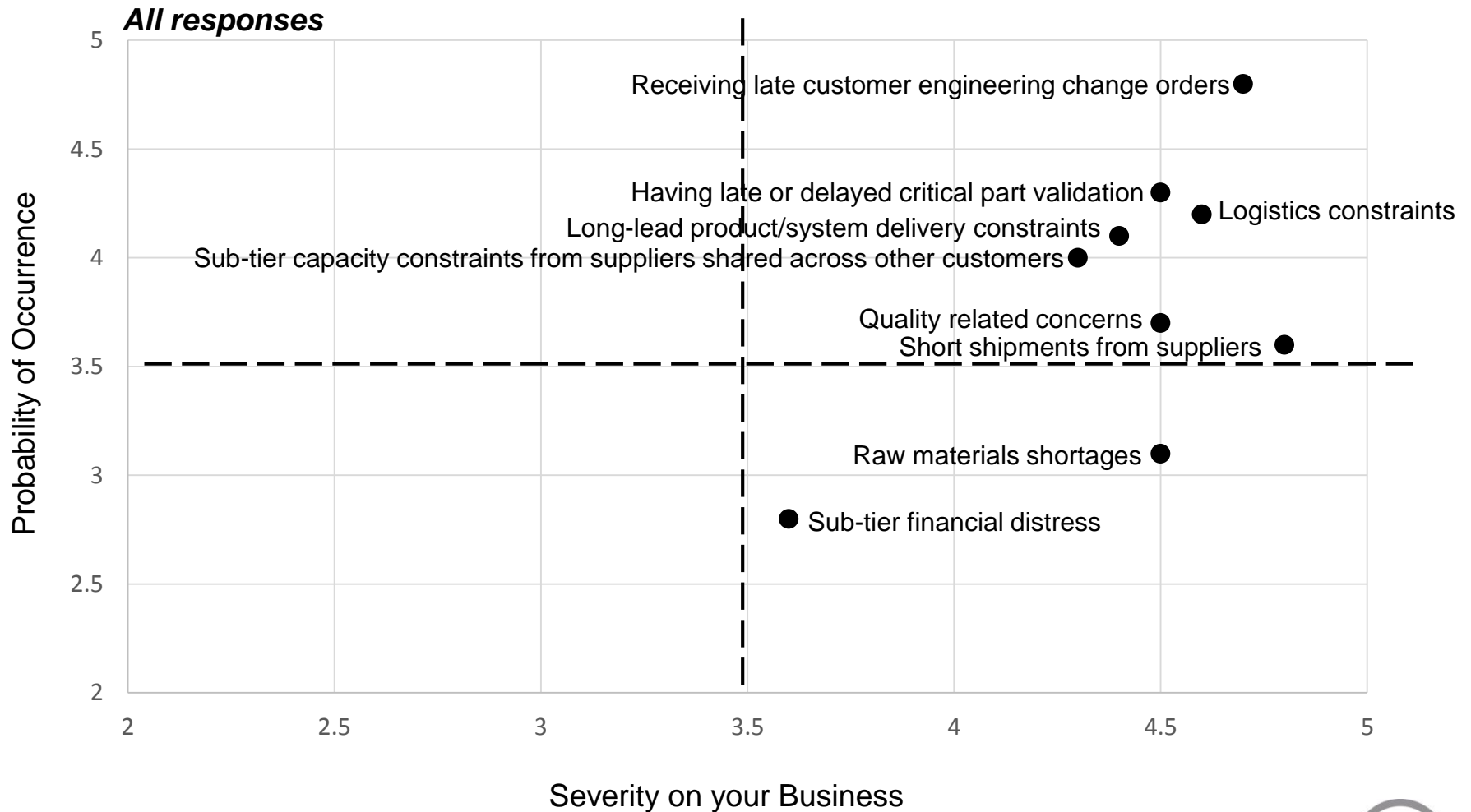
- OEM volumes have been exceeding contracted volumes for months; the trend continues. Our powertrain group is stressed because the demand for 4WD and AWD drivetrains has out paced OEM forecasts.
- Global supply.
- Lack of human resources, cost of the resources.
- Material availability, especially aluminum on class-A components.
- Glass fabrication and assembly.
- Materials.

Interior/HVAC Related Comments

- Mostly related to the West Coast log-jam and the subsequent schedule reduction throughout the industry.
- Interior, West Coast overseas shipment delays that have increased lead-times due to the Longshoreman union contracts not agreed upon.
- OEM volumes have been exceeding contracted volumes for months; the trend continues. Our powertrain group is stressed because the demand for 4WD and AWD drivetrains has out paced OEM forecasts.
- West Coast port problem.
- Capacity vs. investment.
- Protection of IP.
- Materials.

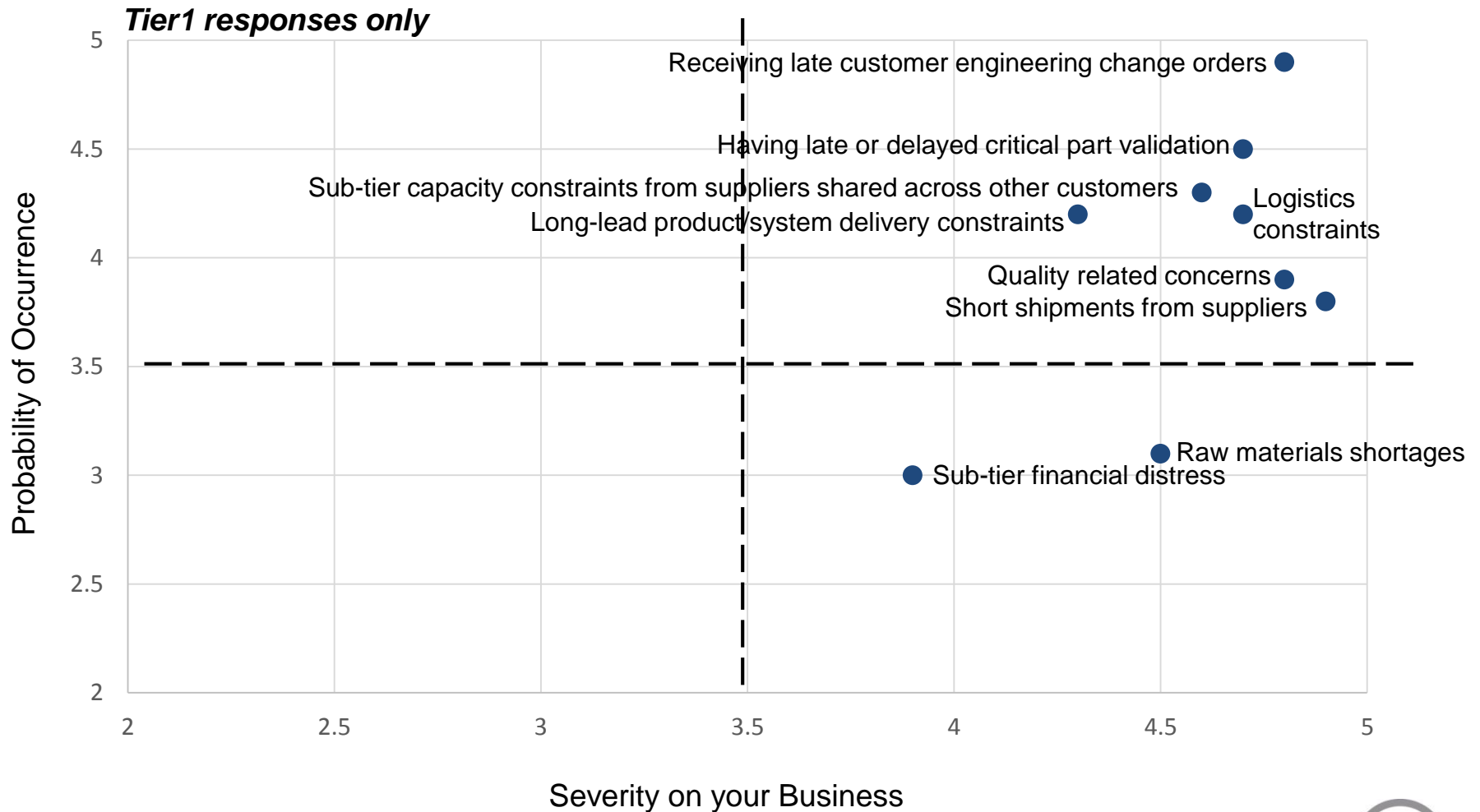
Within your supply chain, over the next 12 months, rate the likelihood of occurrence and the severity that each of the following possible scenarios would have on your business.

Rating scale for both probability and severity is 1-7, with 7 being highly likely of occurrence and very severe



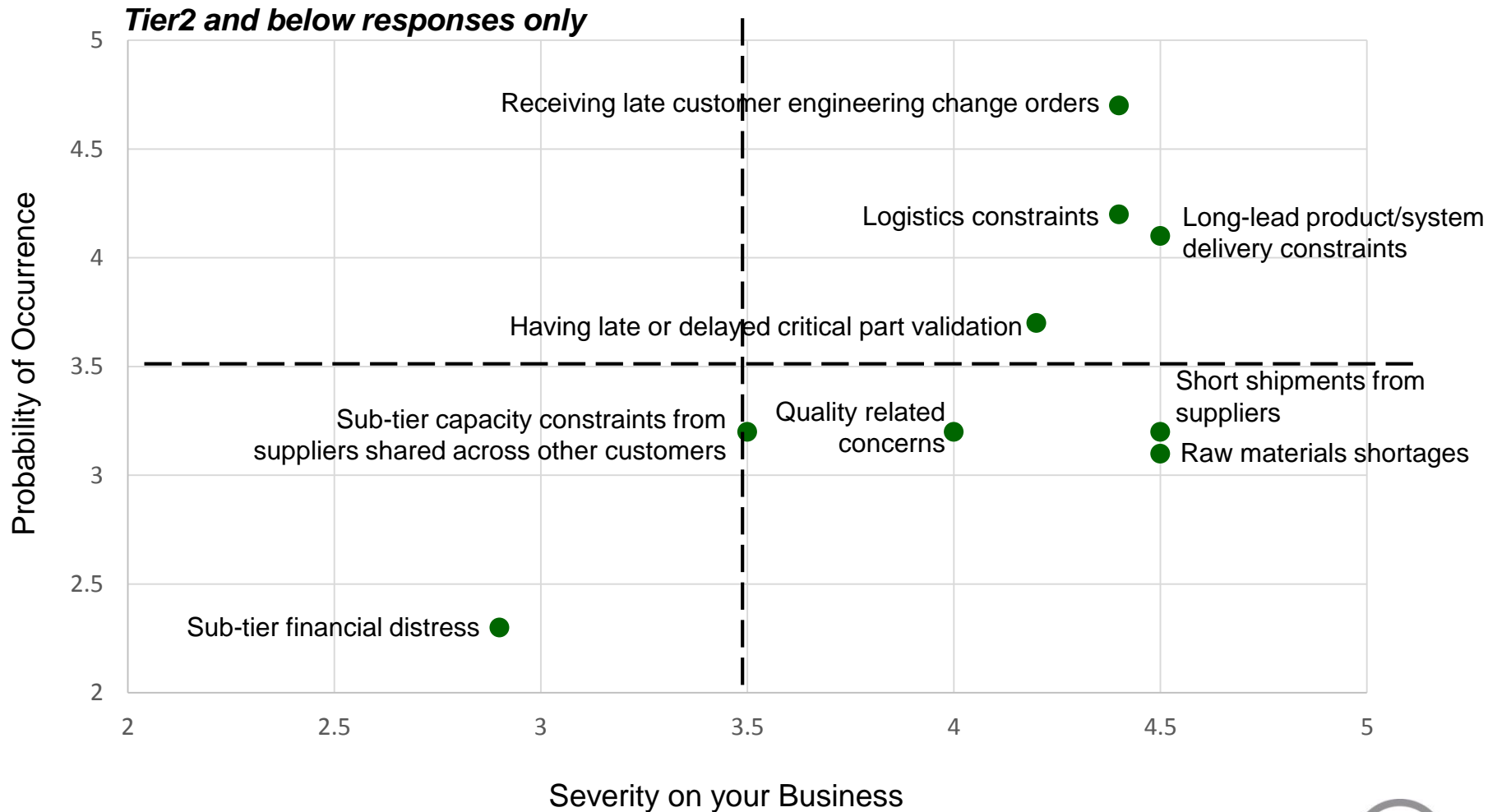
Within your supply chain, over the next 12 months, rate the likelihood of occurrence and the severity that each of the following possible scenarios would have on your business.

Rating scale for both probability and severity is 1-7, with 7 being highly likely of occurrence and very severe



Within your supply chain, over the next 12 months, rate the likelihood of occurrence and the severity that each of the following possible scenarios would have on your business.

Rating scale for both probability and severity is 1-7, with 7 being highly likely of occurrence and very severe

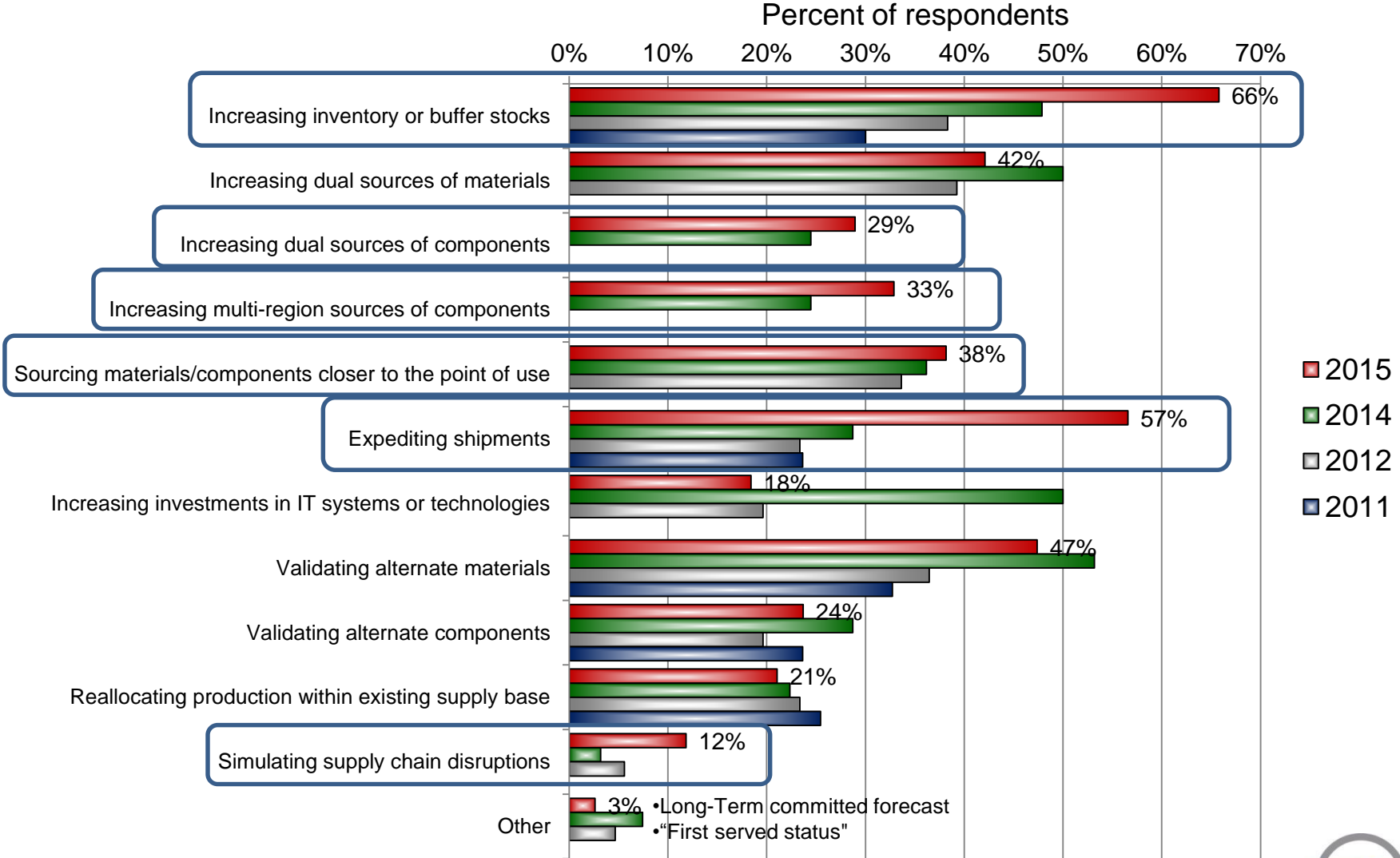


Within your supply chain, over the next 12 months, rate the likelihood of occurrence and the severity that each of the following possible scenarios would have on your business. (continued)

Comments

- PPAP approval and immediate revision is a certainty. Engineering has become less willing to understand stack-up tolerances
- West Coast port problem now influences very negatively.
- After the recalls, engineering work orders became almost impossible to move inside some OEMs.
- We are trying to get process improvement changes approved and, unfortunately, we are expecting delays.
- Anything could happen, read tsunami, but not likely.
- Our customers and the OEM end-customers are their own worst supply chain enemy. The later the unplanned engineering change, the more capacity constraints and quality issues they are inflicting on the supply chain and themselves.
- Logistics constraints relate to West Coast port issues; solution is air freight but very costly raw material relating to thermoplastic polyetherimides.
- Customers are always late on engineering changes.
- West Coast dock slowdown will greatly affect near-term supply of parts coming out of Asia.
- We are already facing difficulties with new tooling. Our suppliers are full and receiving more orders. I believe we will soon have to fight for tooling availability.
- Changes right at launch most common.
- Some of these scenarios are common in our business.
- West Coast port issues are problematic and have required costly air freight.

What actions and strategies are being taken within your company to mitigate supply chain risk?

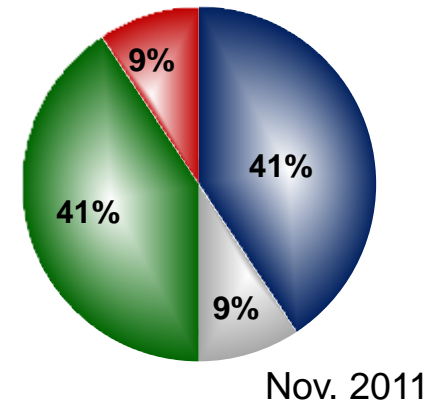
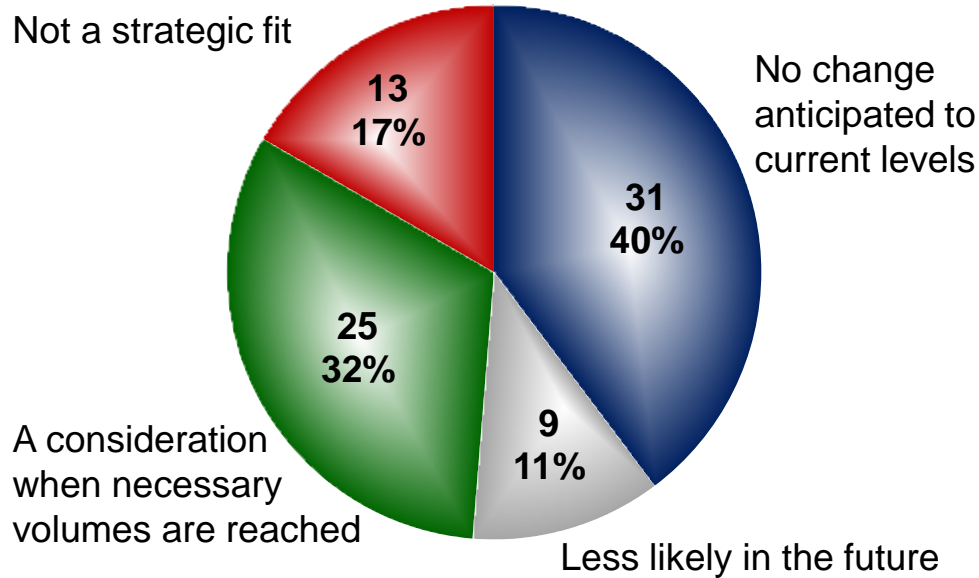


What actions and strategies are being taken within your company to mitigate supply chain risk? (continued)

Comments

- We are disqualifying lower quality suppliers from quoting any new business, thus improving product quality naturally.
- The last thing we want to do is add costs by increasing inventory. We will add resources to monitor our supply base to ensure they have no issues in producing and securing their raw materials and components.
- Also bringing in-house some of the processing we had originally outsourced.
- Validating alternative material for thermoplastic polyetherimide ; air freight to address West Coast port issues.
- Supply delays due to the West Coast port work slowdowns have put major stress on our logistics chain.

As an alternative to adding in-house manufacturing capacity, over the next 12 months, what is your view of out-sourcing or sub-contracting assembly work?



Comments related to out-sourcing strategies

- Outsourcing to proven high quality supply base helps grow the organization with minimal financial hardship.
- We will move product around inside of our global facilities where it makes sense logistically or for other strategic reasons.
- We are over exposed on out-sourcing.
- We will in-source more tool and die business.

Over the next 5 years, considering your product portfolio, describe the capacity and/or capabilities of strategic suppliers that you will need to add into your supply chain and do you feel that those capabilities are available?

Footprint:

- Need more replication in India and Brazil.
- Regional capacity in Mexico, is available.
- Increased assembly and general supplier capabilities across all commodities in the region of Mexico.
- Will need to add expertise and capacity in areas such as Mexico and China where market is growing.
- European precision component machining to support new European manufacturing operations.
- Global development capabilities and abilities to localize production closer to our facilities.
- Greater global footprint.
- We need to add post-processing suppliers (plating and coating) in selected regions.

System/component:

- Automotive-grade electronics component suppliers and they are available but require validation.
- Higher level of electronics capability.
- Electronic components.
- High precision LED application on PCB system capability for chip suppliers HMI improvement capability for electronics supplier; best cost supplier with reliable Tier3 base.
- Need a better strategy with injection suppliers - fewer in number but with better capability.
- Need to reinforce capabilities in supply of castings.
- Plastic molding; drawing/stamping.
- We are looking for automation suppliers, but we don't feel that there are enough out there to meet our needs in a timely fashion.
- Systems integrators for machinery. Yes we have a couple of suppliers but trying new folks out.
- Technical equipment manufacturers, developing in-house capability.

Experience/expertise:

- Product knowledge in the most finite scale possible is paramount.
- High level of software engineering.
- More engineering and quality resources.
- Stronger global engineering.

Over the next 5 years, considering your product portfolio, describe the capacity and/or capabilities of strategic suppliers that you will need to add into your supply chain and do you feel that those capabilities are available? (continued)

Material:

- Need to expand number of raw material suppliers so we have more alternatives.
- Need to add additional raw material suppliers. They are available.
- Alternate light-weight materials.
- Additional raw material suppliers (stainless steels), potential of dual sourcing to help insure supply.
- We will need to develop more strategic steel suppliers in our portfolio of suppliers.
- Alternative materials and production processes are available.

Tooling/machining:

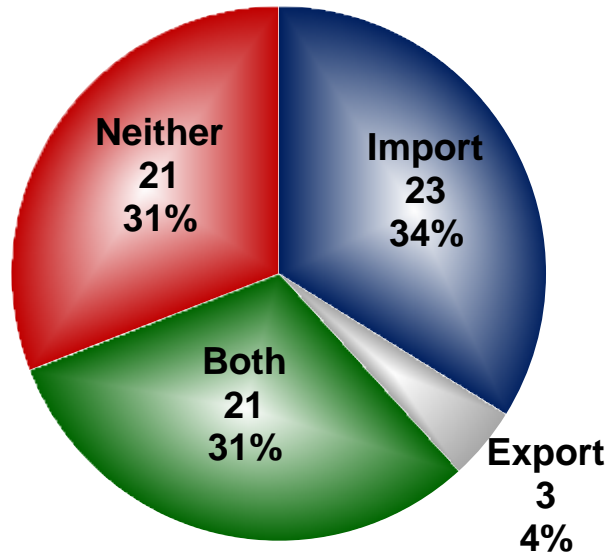
- Sub-tier machining. Needs development today.
- Tool shop capacity and capabilities will become in shorter supply over time.
- Tooling partners for lead recycling.
- We are challenged to find qualified suppliers of machined parts who can meet stringent cleanliness requirements.

General:

- Must demonstrate a partnership and understand our customer's specifications; must hit the key metrics of 100% on-time, zero PPI, and annual productivity.
- I am trying to grow our current suppliers, so in the future we will keep the good relationship .
- Buy more of similar products, capacity can be generated.
- Full component design and testing capability (even at the subsystem level).
- Ability to offer multiple processing alternatives and engineering ability to convert to different materials.
- Continuous improvement culture (VA/VE structure and process).
- More formal, continuous improvement planning as well as improved quality documentation.
- Verticalization of supply chain.
- We our expanding our capacity and seeking new strategic suppliers to complement existing base.

No additional capacity/capabilities needed: (5 similar responses)

With regard to the recent West Coast labor dispute and resolution....Do you import or export out of the West Coast ports?



Comments:

- Very severe status now.
- Major problem for us today.
- Has greatly disrupted our supply chain.
- A slow down but not major issue.
- Not a significant business disruption.
- Have seen no impact.
- We moved some to the East Coast at extra cost.
- Global is looking far less wise compared to "competent and cost effective." Cheaper components can have devastating costs in the big picture.
- We receive product from there for mainly for our Asian OEM customers.
- Specialty steels from Japan, commercial steels from Korea.

If you do import or export, what were the additional 'work-arounds' used to meet production requirements?

Alternative ports

- Use alternative ports. (9 similar responses)
- Use East Coast ports. (6 similar responses)
- Use Canadian ports. (2 similar responses)
- Different routes. (2 responses)
- Go through the East Coast, although the weather conditions have been challenging too.
- Diverted imports to Canadian, Mexican and East Coast ports.
- Use different ports like Mexico.
- We shipped product North and South of the dispute.
- Deviated shipments through Mexico and Vancouver.
- Various West Coast and Panama Canal usage.

Alternate transport:

- Air shipments. (20 similar responses)
- Increased expedited freight/truck. (4 similar responses)
- Import components from Japan or Asia by hand-carry.
- Chartering full flights.
- Use of alternative transportation.

Inventory:

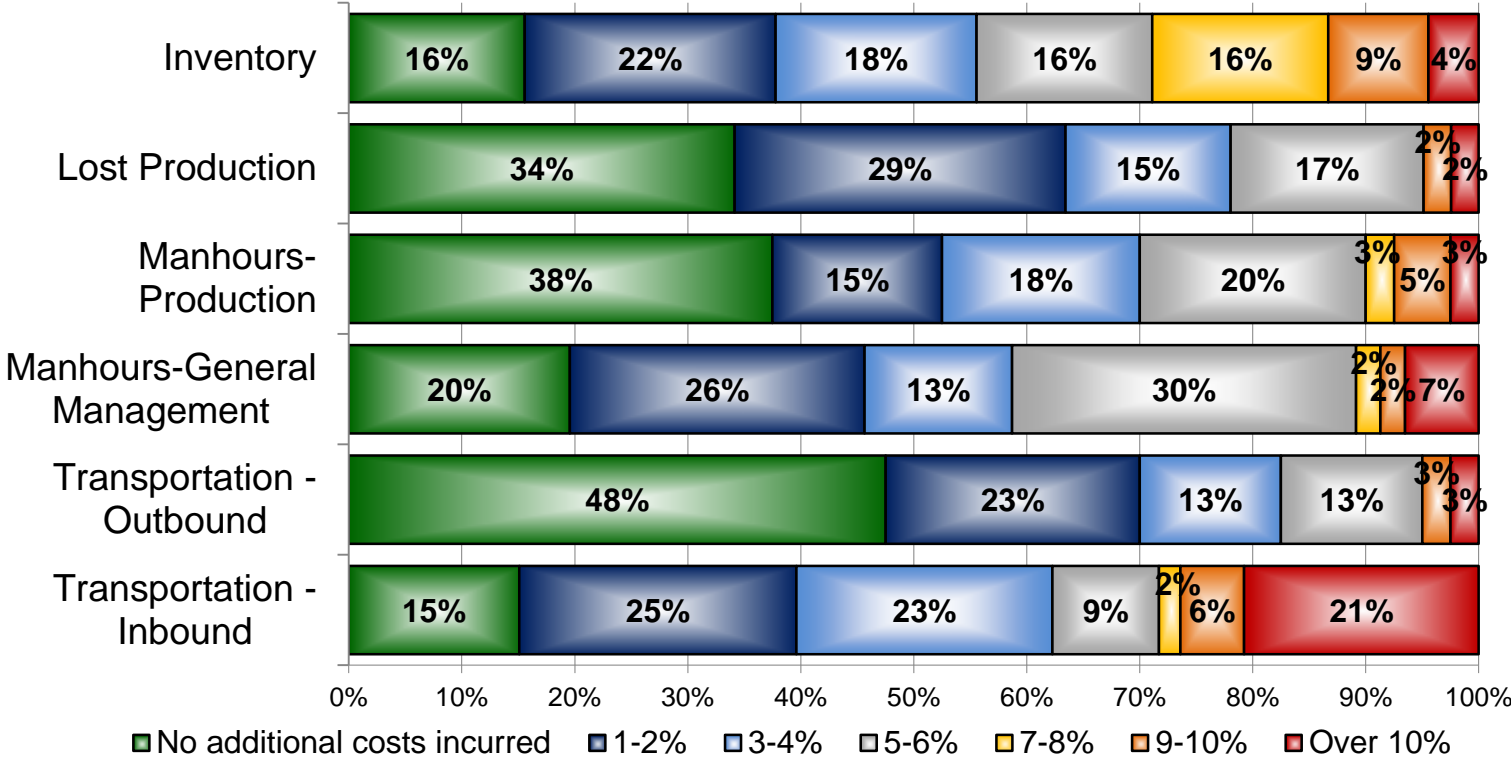
- Increased inventory. (10 similar responses)
- Inventory was in place prior to disruption.
- Started bringing in safety stock early - has helped.

Other:

- Local sourcing.
- Local warehousing in advance of disruption.
- Increase alternative supplier demand.
- Close monitoring of production demands as well as shipments received.

No issues: (4 similar responses)

Please estimate the incremental costs to the impacted programs during the slow down and your recovery period.

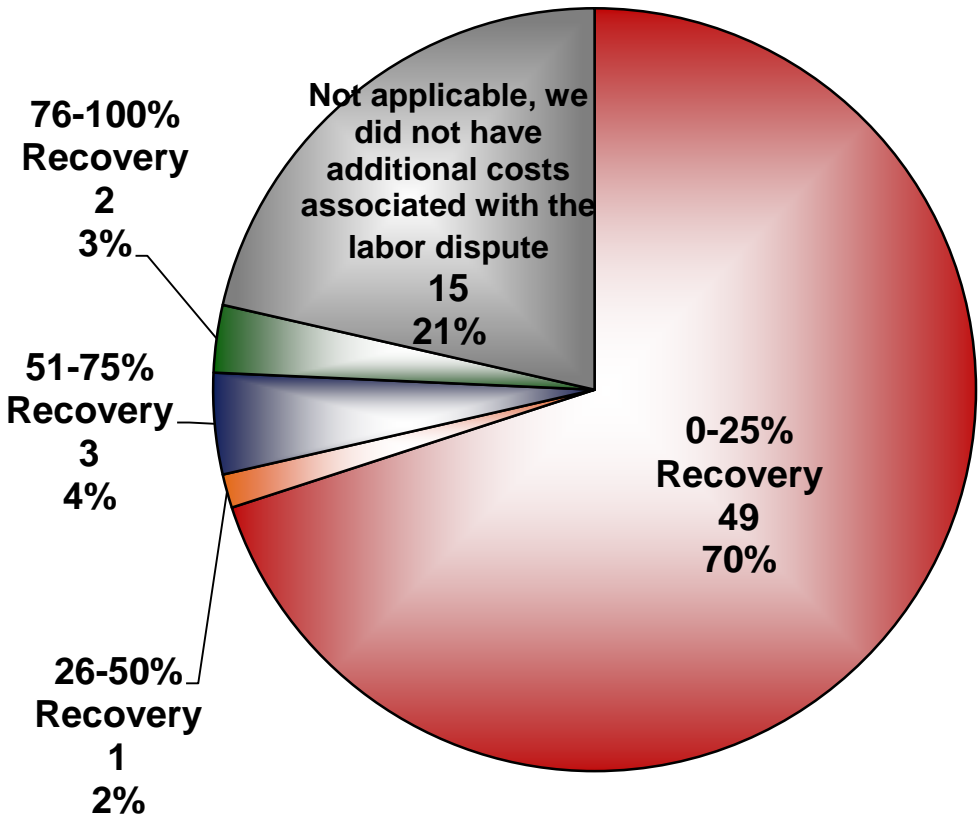


Comments:

- Our book of business with Asian OEMs is rather small in comparison to our global sales.
- We are losing volume since our customer is cutting production.
- Transportation in-bound, manhours-general management and inventory are being tracked and evaluated.
- We felt no impact from the West Coast dispute.



Over the next three quarters in 2015, indicate what percent of your additional costs you anticipate recovering?

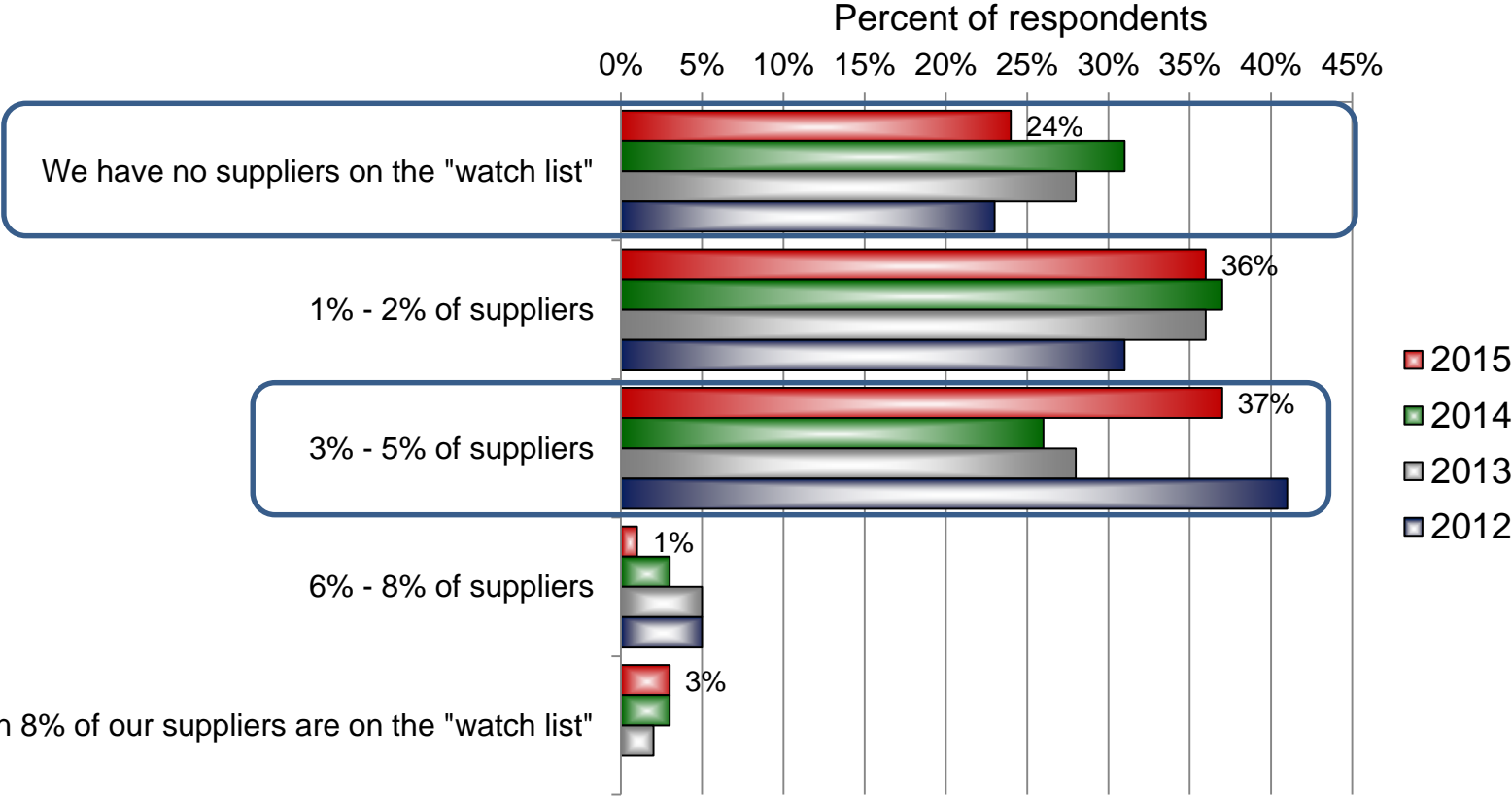


Please describe your recovery plan.

Responses:

- Elimination of premium freight by using an inventory build-up.
- Increased inventory, take air shipments to zero, set up new ports of entry.
- Special transportation from Japan or Asia with extra money.
- Directed component shipment recovery focus.
- Insurance coverage is under assessment considering force majeure of the event (strike).
- Containment executed via safety stock and air freight; material via east coast ports now flowing in; expect to see improvements from West Coast ports in 3-4 months.
- Negotiation with customer.
- Will only get the lost production back.
- Recovered a small portion of the expedited costs, otherwise, no strategy to recover.
- In some cases of customer directed buys-from the customer.
- Expect customer to recover any lost production.
- Plan is under development
- It depends on each end customer.
- Condition will end soon.
- At Tier1, zero relief from customers, and zero support from suppliers.
- Marginable impact that is probably not recoverable.
- None, it ends up being small and part of the management of the business.
- No recovery/absorb costs. (4 similar responses)
- No additional costs. (2 similar responses) needed

What percent of your North American direct material suppliers are currently on your "watch list?"

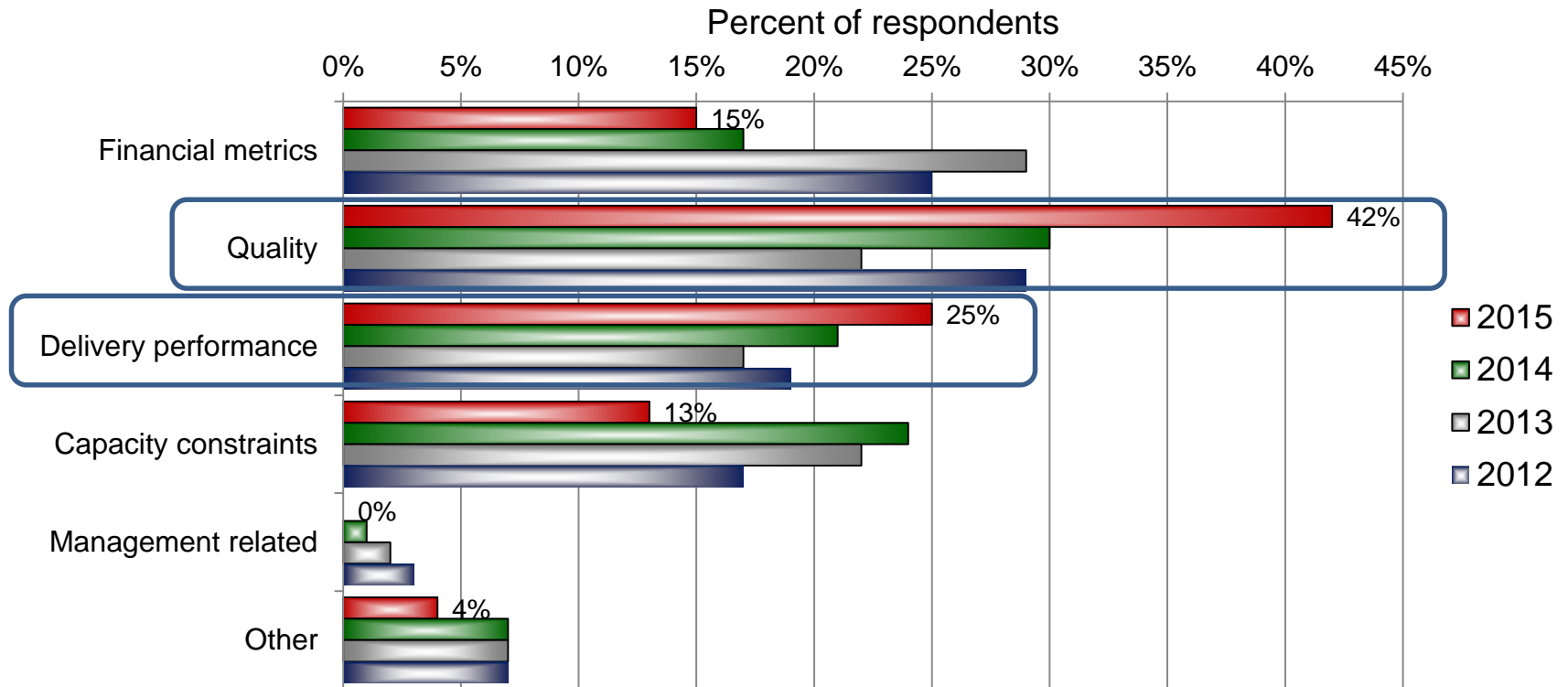


Comments

- Quality, price and consolidation is driving this watch list.
- In comparison to five years ago, the numbers have come down significantly.
- Only a couple of suppliers on this list.
- We do not have a watch list.



What is the primary reason companies are being added to or continuing on the supplier "watch list?"



Comments

- There is generally not one reason. It starts with a quality or delivery issue and gets worse from there, unless we are alerted and assist the supplier with countermeasures.
- Quality but financial is a close second.
- Suppliers becoming more leveraged to support increased capacities is the main concern.
- 1) quality, 2) delivery, 3) financial viability

Thank you for your participation

The OESA Automotive Supplier Barometer survey is published every other month. The next survey will be launched on Monday, May 4, 2015 and will be released Friday, May 8, 2015.

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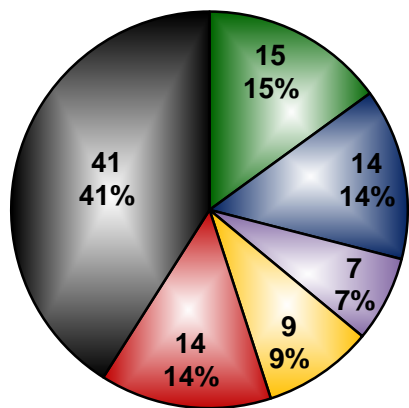
Please note: The information and opinions contained in this report are for general information purposes. Comments are edited only for spelling and may contain grammatical errors due to their verbatim nature. Responses to this survey are confidential. Therefore, only aggregated results will be reported and individual responses will not be released or shared. These results that have been reviewed and approved by outside counsel.

Antitrust Statement. This survey content is exclusively about historical data, and respondents/participants should not contact each other to discuss responses, or to discuss the issues dealt with in the survey. It is an absolute imperative to consult legal counsel about any contacts with competitors. All pricing decisions and negotiating strategies should be handled on an individual company basis.

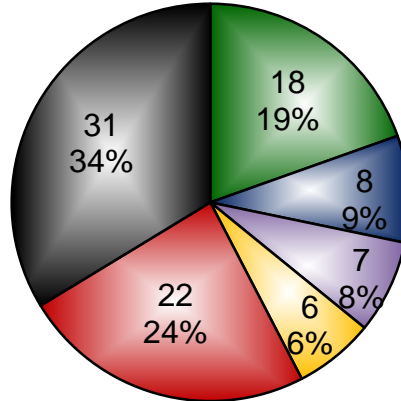


APPENDIX:

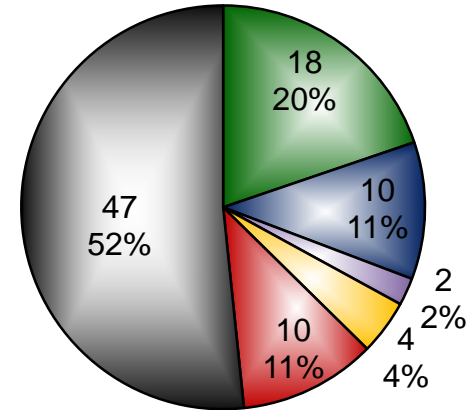
There has been a great amount of discussion about sourcing constraints down through the supply chain. What system area(s) is/are your most significant supply chain constraint(s)?



2015



2014



2013

- Powertrain
- Chassis
- Exterior
- Interior/HVAC
- Electrical/Electronics
- We don't have any supply chain constraints