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GLOBALIZATION AND SUPPLY CHAIN

OESA AUTOMOTIVE SUPPLIER BAROMETER

3Q 2018



Executive Summary



Supplier Barometer Index (SBI)

SBI Score = 43;

down from 2Q level of 53

The barometer reading fell sharply into pessimistic territory this quarter on growing trade concerns. The 3Q 2018 index reading reflects a steep 14 point drop from 1Q 2018.



Regardless of revenue size, supplier executive responses reflect a universal increase in pessimism compared to prior quarter:

75% of executive responses from larger suppliers (revenue \$500M-\$1B) show a sharp increase in pessimism, up from 38% in 2Q 2018.

Some 50% of responses from smaller, more regionally focused suppliers (revenue \$50M-\$150M) reflect an increase in pessimism, nearly 5X the rate of the prior quarter.



Trade policy continues to be identified as the greatest industry threat

The threat level surrounding trade policy on a 10-point scale (1=greatest threat) has intensified, falling to 3.1 in July, down a full point from 2Q 2018.

Moreover, trade policy now stands out as the greatest threat to the industry by a wide margin, a full 2 points from the next greatest concern of poor sales of programs supplied at 5.1.



Risks Associated with Meeting Customer Production Requirements:

Internal production risks are capacity, scheduling and timing.

Supply Chain Risks are material availability, regulations and international influences.

Executive Summary



Surveyed Supplier Import/Export Balance is Skewed

As a median value, 10% of current U.S. production is exported outside of the U.S. while 45% of material (on a dollar basis) needed for production is purchased outside of the U.S.

Most exports are sent to Mexico and Asia, while Asia is also the main source of imports.

The rate of exports is increasing to Mexico and Asia.



Most Suppliers Believe that Supply Chain Rationalization Will Occur

Though most suppliers believe that N.A. capacity rationalization will occur over the next year.

19% of respondent companies have a direct supply base that is too large. Given that, a 17% average reduction in the number of their direct suppliers is planned by those companies.



One of the Primary Causal Factors in Supply Chain Concerns is Capacity Constraints

The number of direct suppliers on a 'watch list' has increased compared to last year. Capacity is one of the causal factors in addition to supplier financials.

However there is a mixed message because sub-tier financial distress is rated lower in the supplier concern scenarios of probability and severity.

Electrical/Electronics systems or components are at the greatest risk of supply constraints due to competing industry demand and accelerating change of technology



On Average, 20% of Company Suppliers are Directed Buy as Required by Customers, However the Majority of Respondents Have 5% or Less of Directed Buy Suppliers



U.S. is the Regional Leader in N.A. Production with Expected Growth in U.S. and Mexico

Customer sourcing localization has increased over last year driven by U.S. trade policy and customer locations in Mexico.



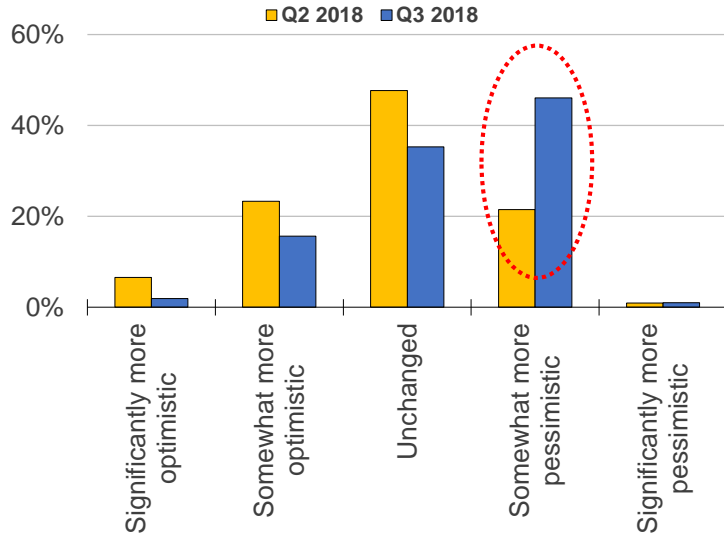
SUPPLIER OUTLOOK



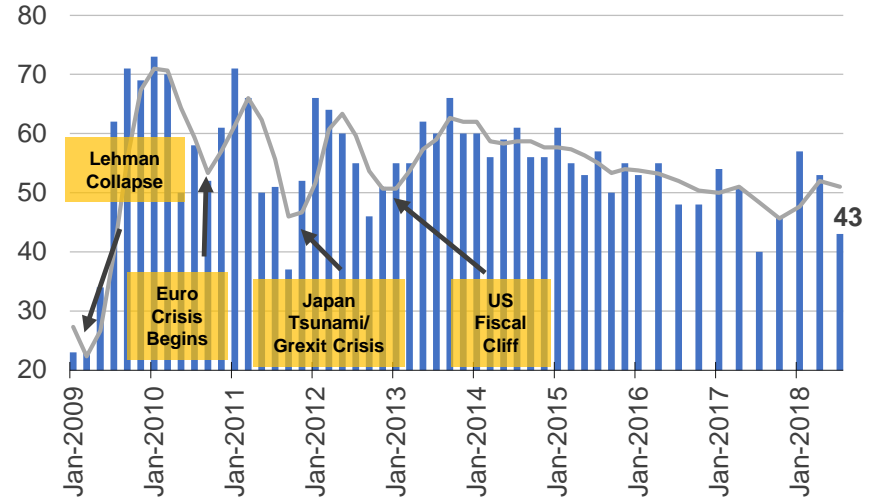
OESA Supplier Barometer: 3Q 2018 Results

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

Current Supplier Outlook (Share of Respondents)



Supplier Barometer Index: (SBI and 6m Average)

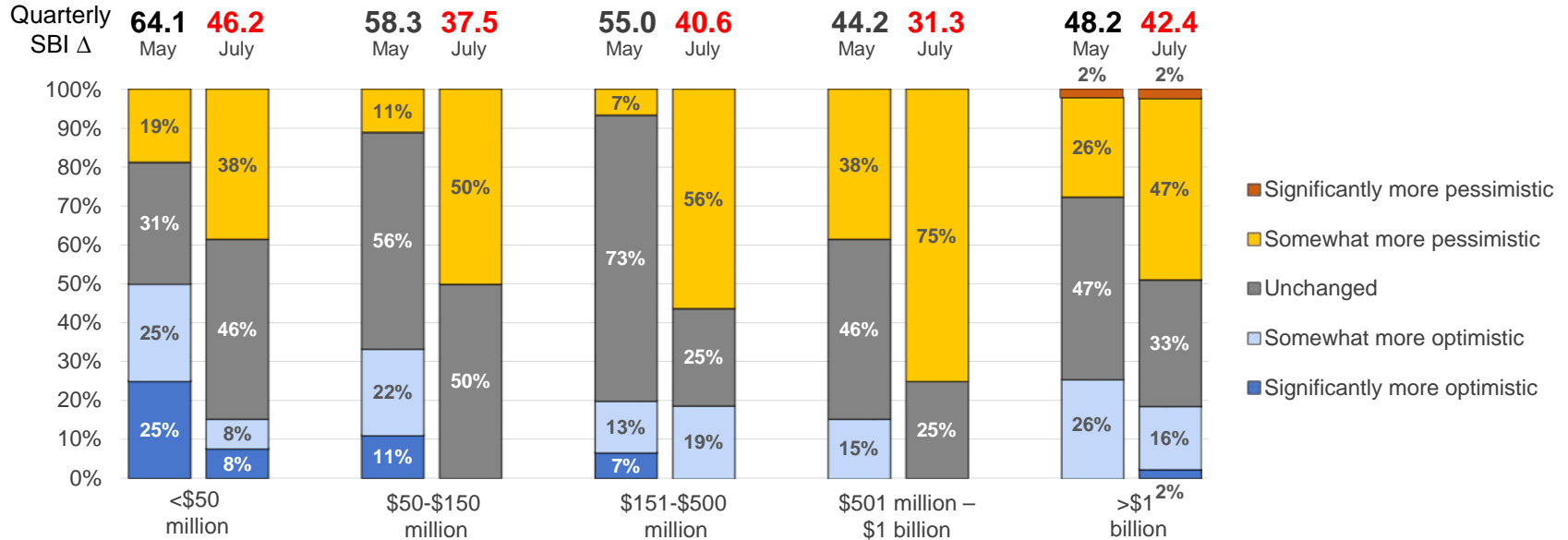


102 responses

Rising concerns over tariffs and trade policy pulled down the 3Q 2018 OESA Supplier Barometer Index (SBI) by ten points to 43, seven points below a neutral reading.

OESA Supplier Barometer: 3Q 2018 Results By Revenue

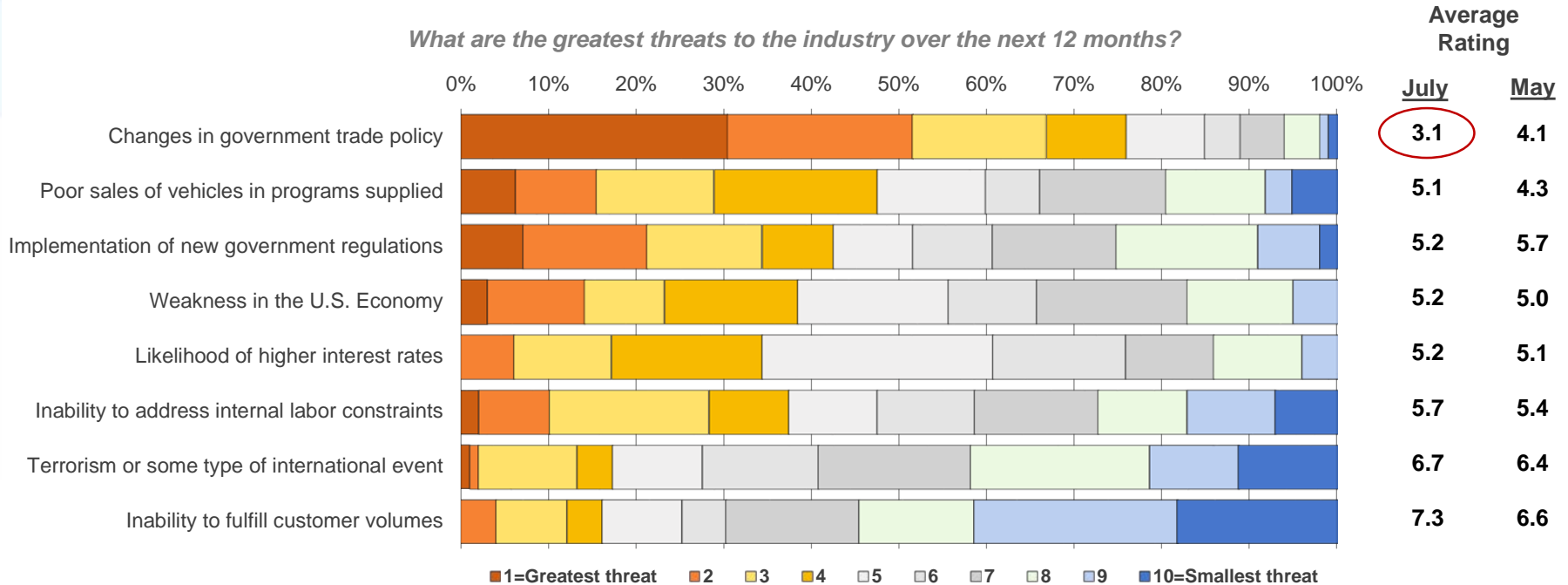
Describe the general twelve month outlook for your business. Over the past three months, has your opinion become..?



Regardless of revenue size, responses reflect a universal increase in pessimism over 2Q 2018. Pessimism at larger suppliers (*revenue \$500M-\$1B*) nearly doubles to 75% in 3Q 2018.

OESA Supplier Barometer: Industry Threats

What are the greatest threats to the industry over the next 12 months?



Trade policy is the greatest industry threat, at 3.1 in July, down a full point from 4.1 in 2Q 2018. Changes to trade policy stand 2.0 points below the next top threat of *poor sales of programs supplied* at 5.1.



GLOBALIZATION



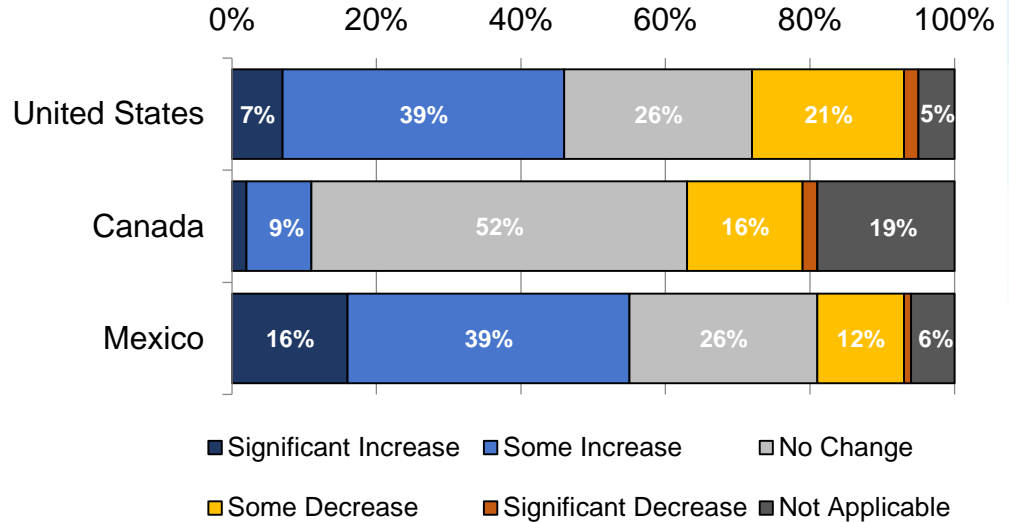
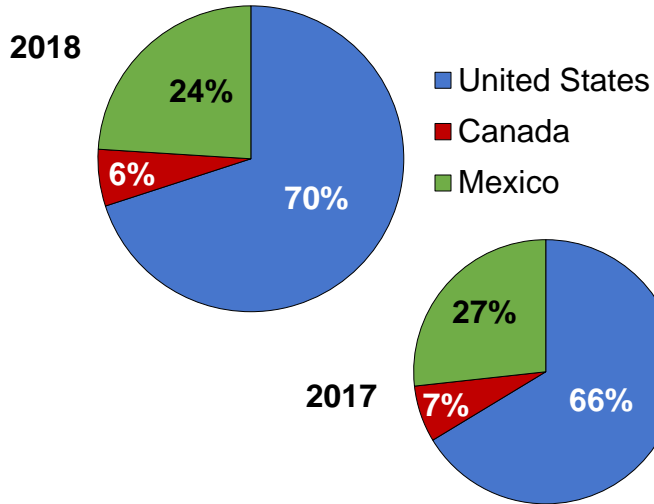
North American Production

U.S. Leads North American Production and is Expected to Grow Along with Mexico

For your products produced in North America, identify the percent manufactured in each of the following countries.

How do you expect that these percentages will change over the next 5 years?

Average regional NA production



North American Production

Please elaborate on regional directional changes and reasons for the changes.

United States:

- Adding capacity. (2 similar responses)
- Growing business. (2 similar responses)
- To adapt to the administration tariff/tax policy.
- Customer increasing production plans.
- We expect our customer's final assembly to move from Mexico to the US which would affect our Mexico assembly.
- Our strategy is to be close to our customer locations. NA customers are moving south.
- Expanding product offering.
- Based on trade resolution.
- Expected reduction in US based business due to unfriendly trade dialogue with German transplants.
- Government pro-USA regulation changes; a large part of our components comes from Asia.
- Heavy workload past couple years due to new products for trucks and SUV.

Canada:

- Acquisition.
- Decline in product demand - technology change.
- Customer locations are moving source in NA to Mexico.

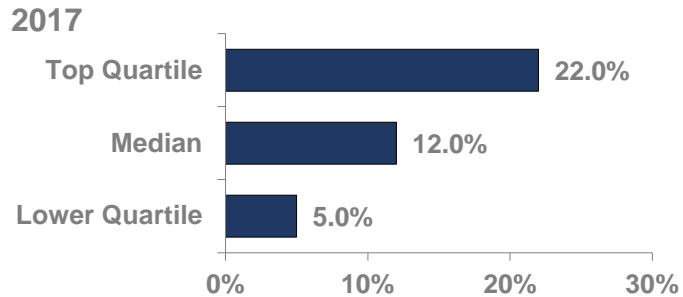
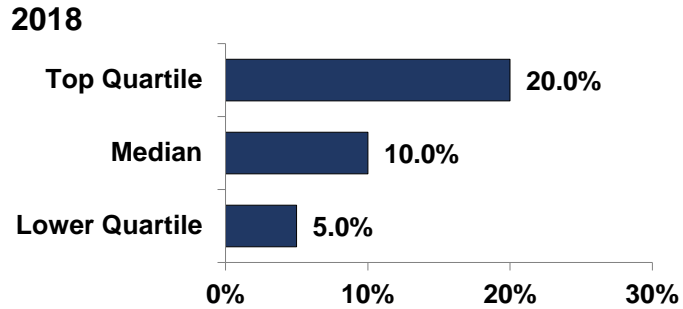
Mexico:

- 50% of what we produce goes to Mexico – acquisition.
- Expansion of business with non-NA transplants.
- Customer increasing production plans.
- FCA decision to move DJ to Warren Truck from Saltillo.
- Growing business.
- Changes to NAFTA.
- Move source from China to NA.
- Peso exchange rate changes have reduced cost of Mexico production (in \$) by 50%.
- Short-term we see NA gains in Mexico. This may change based on global trade.
- Adding capacity and expanding product offering.
- Growth of OEMs in Mexico.

North American Production

Exported Products are Primarily Sent to Mexico

Estimate the percent of your current U.S. production that is exported outside of the United States.



What is the estimated split of these exports (in percent) to each of the following regions?

2018	Lower Quartile	Median	Upper Quartile	Number of respondent companies exporting to each region
Canada	15%	30%	50%	43
Mexico	29%	50%	70%	48
Europe	10%	20%	30%	37
Asia	10%	20%	26%	36
S. America	10%	15%	24%	16
Mid-East/ Africa	5%	8%	10%	8

2017	Lower Quartile	Median	Upper Quartile	Number of respondent companies exporting to each region
Canada	20%	25%	45%	37
Mexico	30%	50%	70%	42
Europe	5%	15%	25%	25
Asia	5%	10%	30%	29
S. America	2%	5%	10%	16
Mid-East/ Africa	1%	1%	3%	3



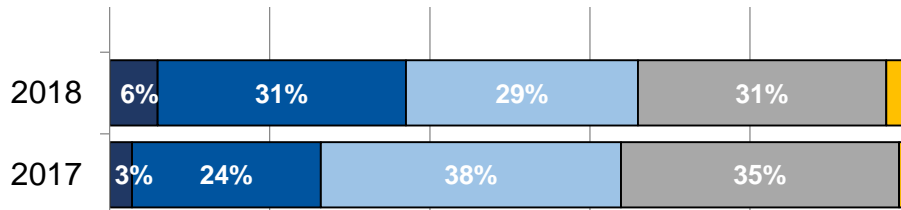
Sourcing

Customer Sourcing Localization has Increased Compared to Last Year

Over the past year, what level of manufacturing localization activity/effort did you...

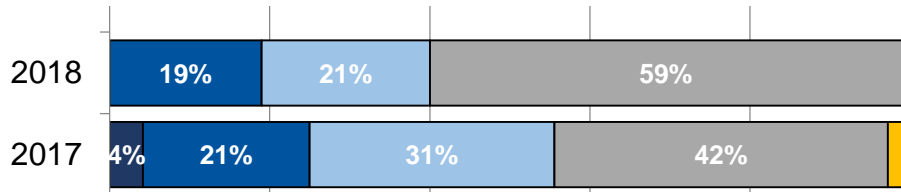
0% 20% 40% 60% 80% 100%

... see from your customers?



- Customers are planning for localization and delaying making decisions.
- The customers prefer that we have a local shipping location. But prefer to keep costs low, so if lowest cost is global, they will source global.
- Some concerns about tariffs.
- No pressure to localize.

... pursue with your suppliers?



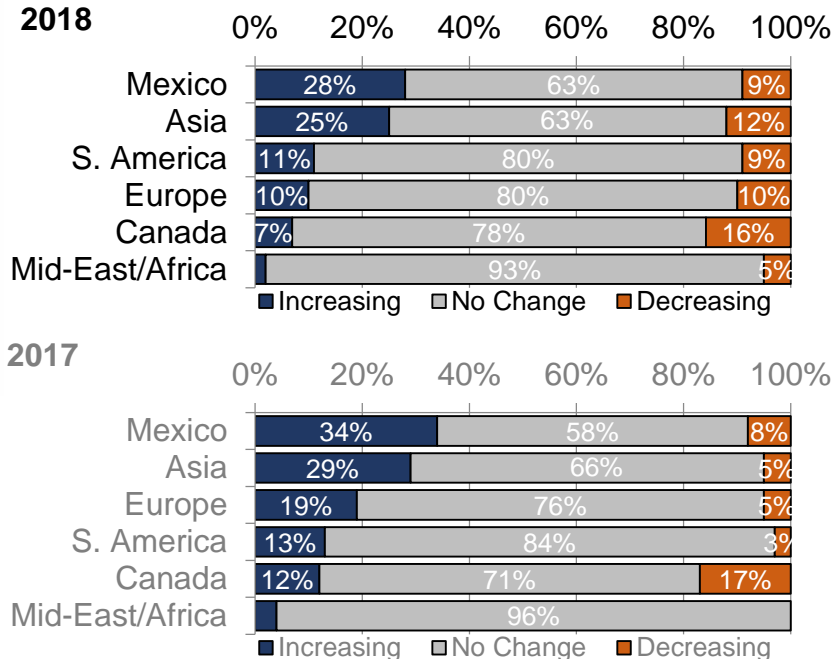
- We try to localize as much as possible to avoid currency and delivery risk. But if local is not always lowest cost, then we will global source.
- Goal to increase localization to NA.

Extensive Increase
 Moderate Increase
 Minimal Increase
 No Change
 Minimal Decrease
 Moderate Decrease
 Extensive Decrease

Sourcing

The Majority of U.S. Exports are Planned for Mexico and Asia

For each region, please describe the direction of your export plan over the next 5 years.



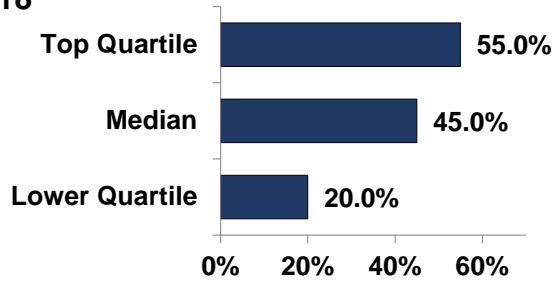
	<i>What major factors drive this regional export plan?</i>
Canada	<ul style="list-style-type: none"> • Movement away from pass car volumes. • As a Chinese company, this region is supplied by China due to lower price. • We export small quantities of our products directly to the OEMs.
Mexico	<ul style="list-style-type: none"> • Awarded new business. • Customer's assembly moving back to the US. • Region is supplied by China due to lower price. • Customer production in Mexico.
Europe	<ul style="list-style-type: none"> • Opening plant in Europe 2018. • Region is supplied by China due to lower price.
Asia	<ul style="list-style-type: none"> • Customer requirement. • Region is supplied by China due to lower price. • Localization.
S. America	<ul style="list-style-type: none"> • Region is supplied by China due to lower price.
Mid-East/Africa	<ul style="list-style-type: none"> • EOP in 4 years. • Region is supplied by China due to lower price

U.S. Production Imports

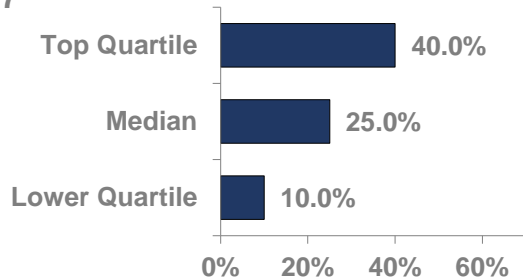
Imbalance Between Imports and Exports

Estimate the percent of your current material costs for U.S. production (by dollar value) that is purchased outside of the United States.

2018



2017



What is the regional split of your total (by dollar value) of materials/components purchased for U.S. production?

2018	Lower Quartile	Median	Upper Quartile	Number of respondent companies exporting to each region
Canada	5%	10%	25%	33
Mexico	10%	25%	40%	33
Europe	5%	7%	20%	35
Asia	14%	35%	60%	48
S. America	9%	10%	15%	4
Mid-East/Africa	13%	23%	44%	4

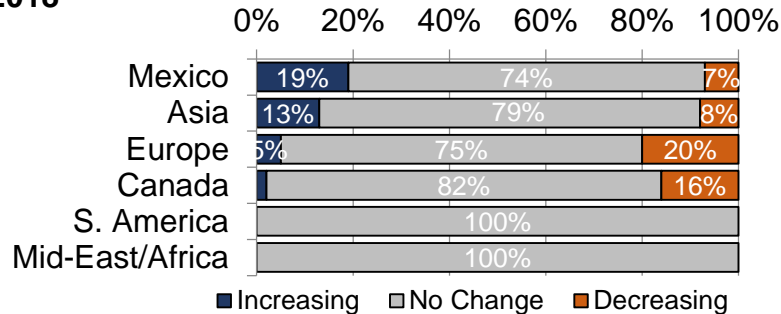
2017	Lower Quartile	Median	Upper Quartile	Number of respondent companies exporting to each region
Canada	5%	12%	25%	19
Mexico	15%	20%	50%	21
Europe	10%	30%	53%	27
Asia	35%	68%	95%	34
S. America	5%	10%	20%	5
Mid-East/Africa	1%	1%	1%	1



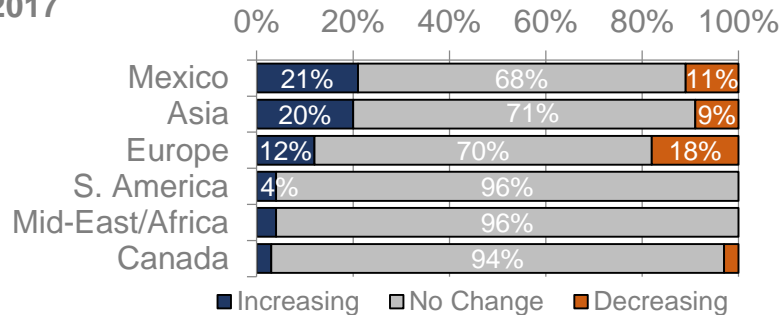
U.S. Production Imports

For each region, please describe the direction of your purchase plan over the next 5 years.

2018



2017



	What major factors drive this regional import plan?
Canada	<ul style="list-style-type: none"> Tariffs. (2 responses) We are a China based manufacturer and will utilize internal sources for lower cost in US manufacturing operations.
Mexico	<ul style="list-style-type: none"> Tariffs. We are a China based manufacturer and will utilize internal sources for lower cost in US manufacturing operations.
Europe	<ul style="list-style-type: none"> Opening a plant in Europe in 2018. EOP (mostly directed buy components). Cost from Europe, some suppliers are concerned about US. We are a China based manufacturer and will utilize internal sources for lower cost in US manufacturing operations.
Asia	<ul style="list-style-type: none"> Tariffs. (2 responses) We are a China based manufacturer and will utilize internal sources for lower cost in US manufacturing operations.
S. America	<ul style="list-style-type: none"> We are a China based manufacturer and will utilize internal sources for lower cost in US manufacturing operations
Mid-East/Africa	<ul style="list-style-type: none"> We are a China based manufacturer and will utilize internal sources for lower cost in US manufacturing operations





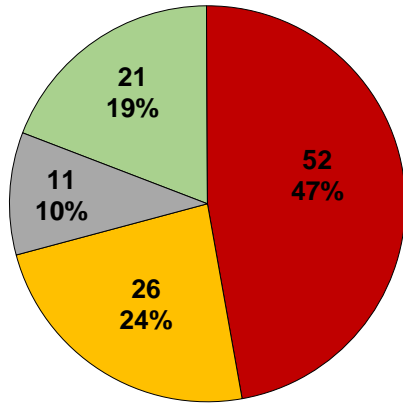
SUPPLY CHAIN



Capacity

Rationalization is anticipated

How do you see North American supply chain capacity changing over the next year?



- NA Capacity Expansion Will Occur
- NA Capacity Rationalization Will Occur
- NA Production Constraints Will Occur
- None of these

Comments:

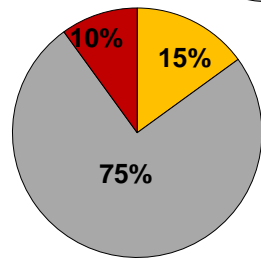
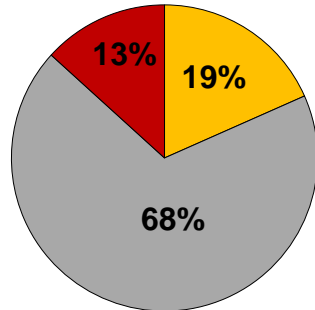
- Although we are looking to add capacity, there is still a difficulty in attracting and retaining people.
- Capacity will need to be managed as NA market levels out.
- Continue to right-size as production peak has passed.
- Dependent on outcome of trade policy.
- Expect overall capacity to remain fairly stable, given the expected NA sales volume.
- It isn't that it makes sense, but plants continue to be added regardless of what is rational.
- Mid- to long-term investments in the US and Canada beyond replacement levels will be problematic for most suppliers, in the current chaos of tariffs and one sided negotiations. Mexico is likely to thrive due to export markets and overall superior cost structure.
- Still further consolidation in the supply base will occur. Technology will change some of the suppliers in regards to BEVs and AVs longer-term.
- Tariffs are a huge wild card. Impact on domestic material and component supply capacity could be dramatic.
- The current administration does not have a good feel for our business; just politics.
- The new trade policy will make it advantageous for US companies to expand capacity.
- There could be some constraints from supply of dye stuff due to environmental crackdowns in China.
- Unstable trade policy hinders long-term investment in capacity expansion.
- With the exception of new technology startups providing to electrification and autonomous driving.
- Constraints will occur if NAFTA does not get resolved and tariffs continue.
- Raw material capacity and availability issues.

Size of Supply Base

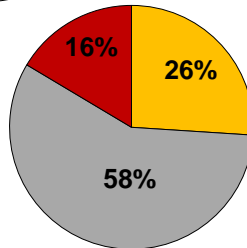
Considering your 2018-2019 North American production planning volumes expectation, in terms of the number of your NA suppliers, select the relative size of your current supply base

Direct Suppliers

2018



2012



2017

- Too Small
- Appropriately Sized
- Too Large

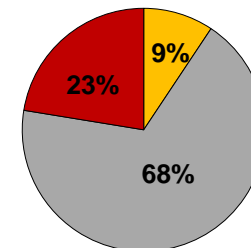
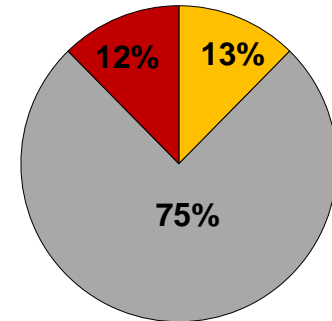
If your supply base is too large, over the next year, what percent reduction levels are you planning for (based on number of suppliers)?

Average -17%

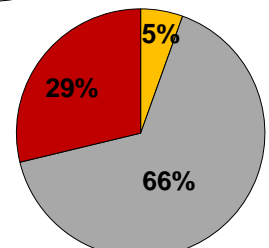
Average -18%

Indirect Suppliers

2018



2012



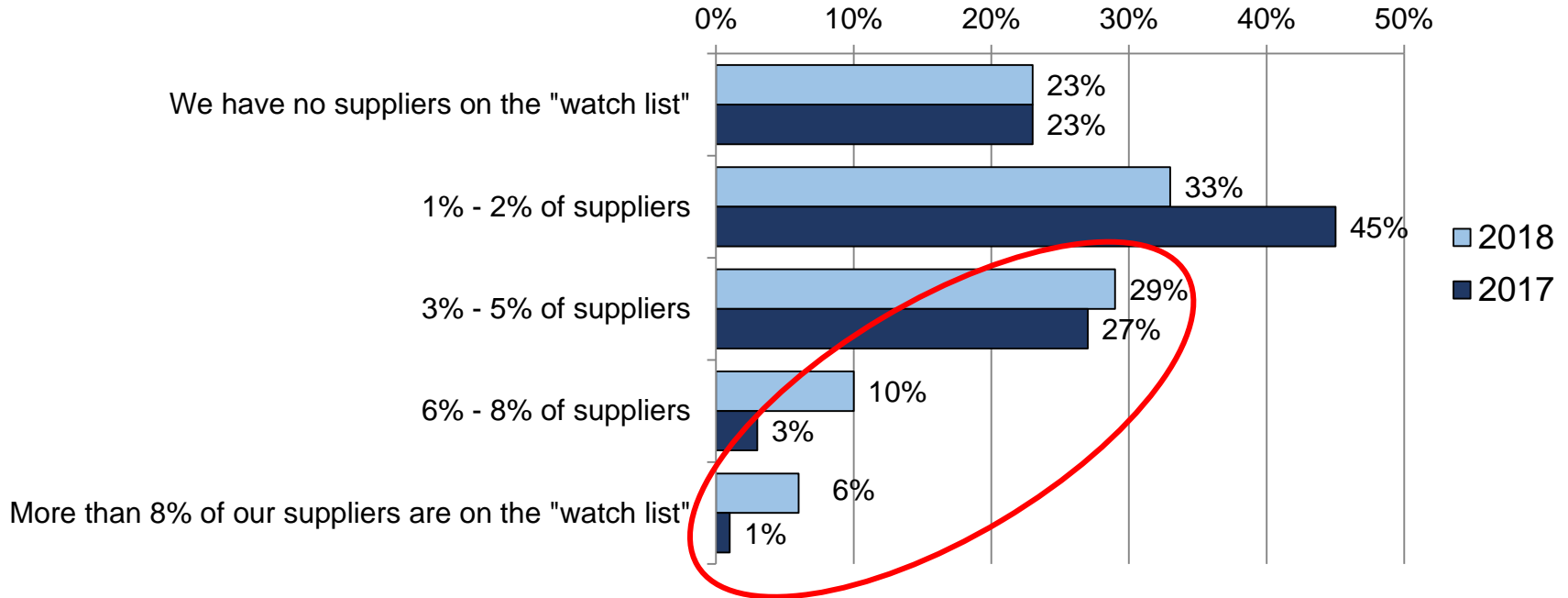
2017

Direct Supplier Risk

Increasing Risk with Watch List Suppliers

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

Percent of Respondents

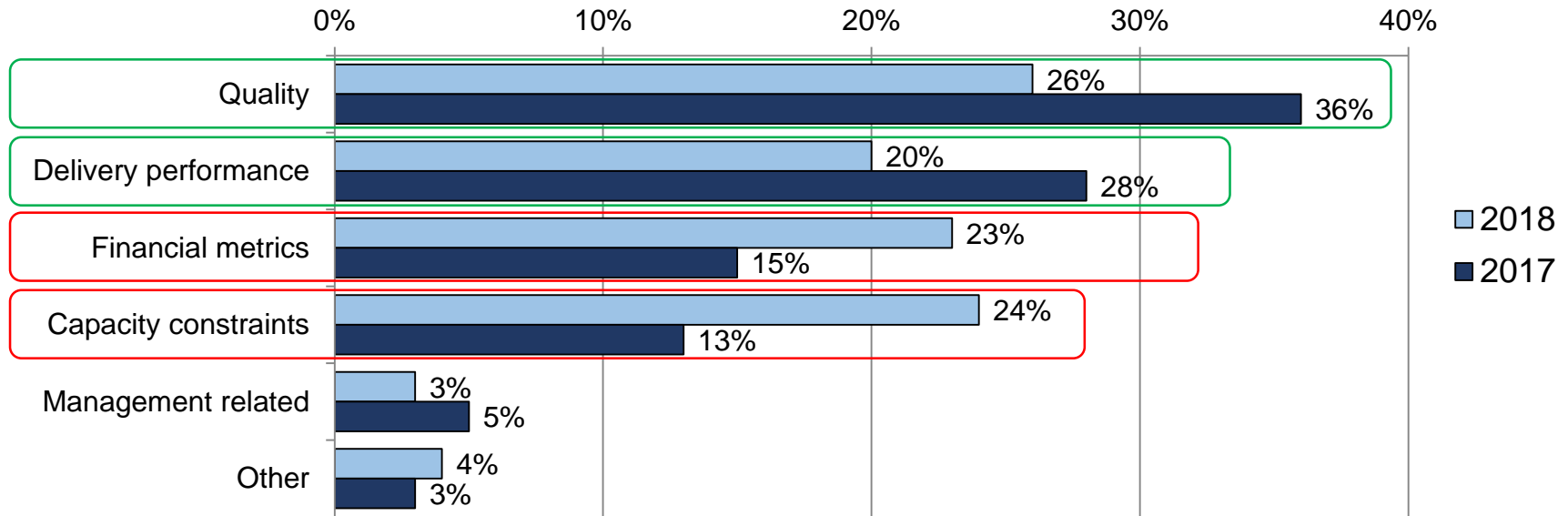


Direct Supplier Risk

Financials and Capacity Constraints Worsened Over Last Year, Quality and Delivery Performance Improved

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

Percent of respondents

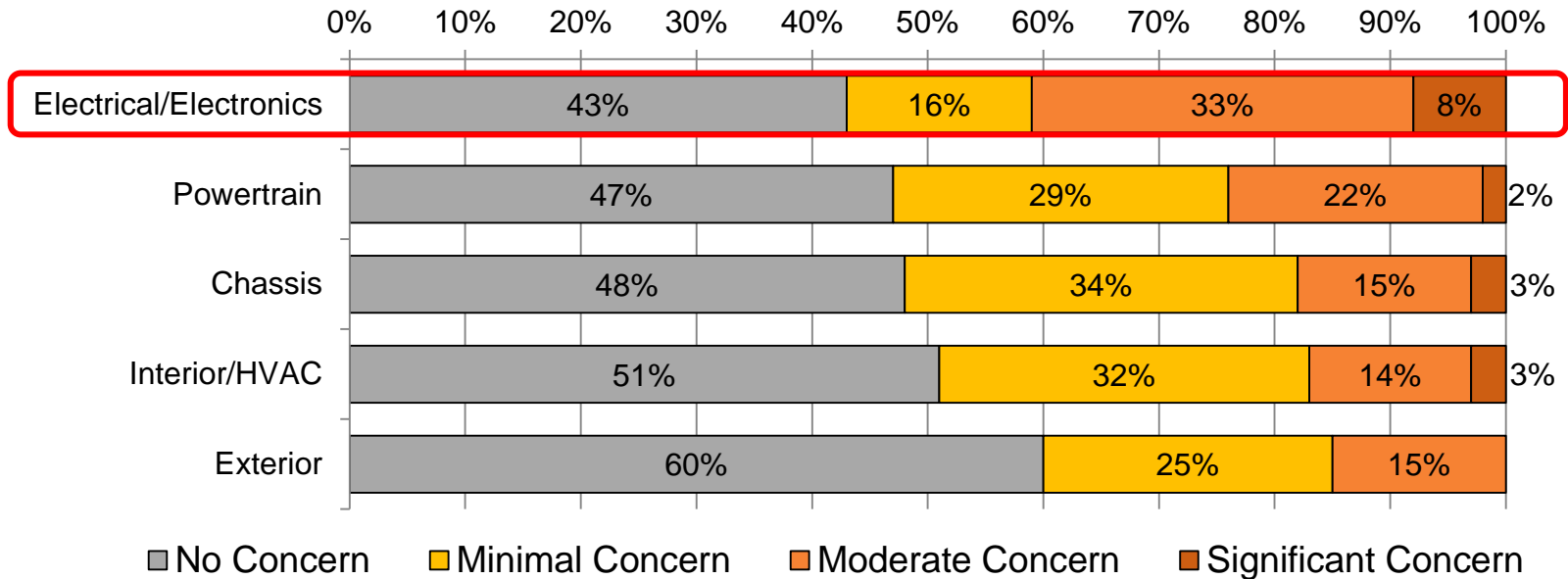


Sourcing Constraints

Electrical/Electronics Constraints are at Risk

For each of the following system areas, select your level of concern in having future sourcing constraints

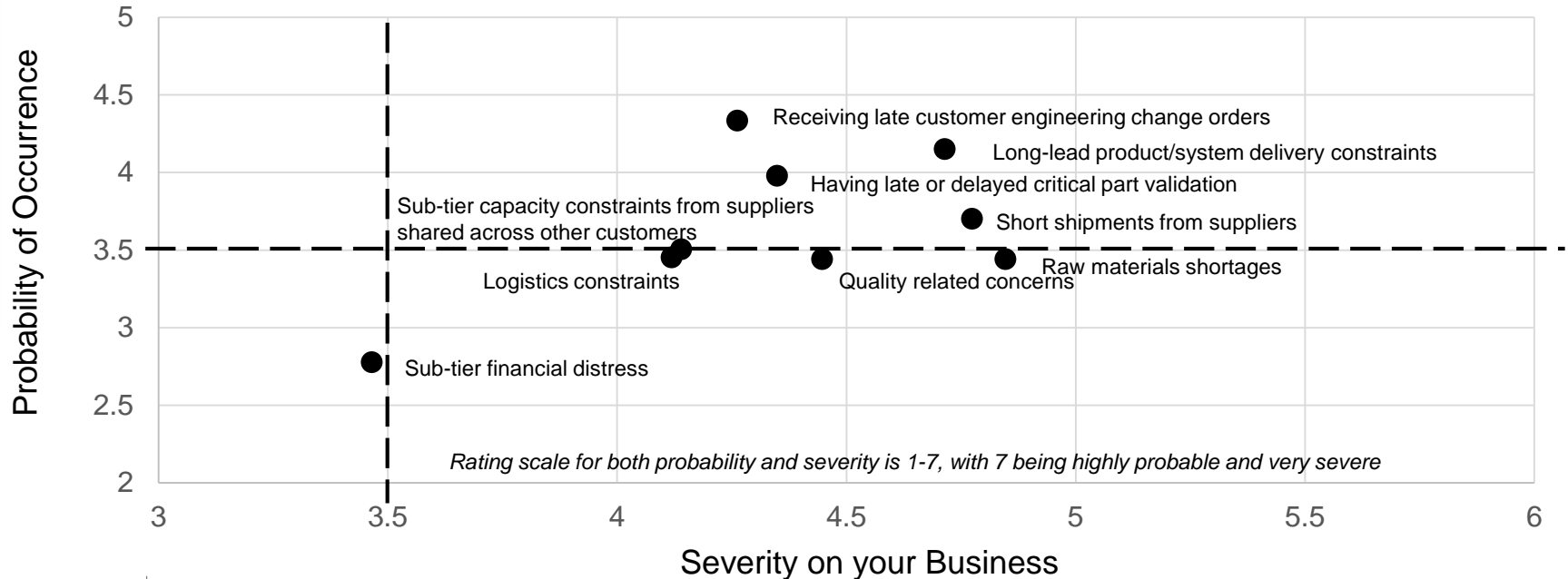
Percent of respondents



Supplier Concern Scenarios

Confirmation that Timing Must be Managed

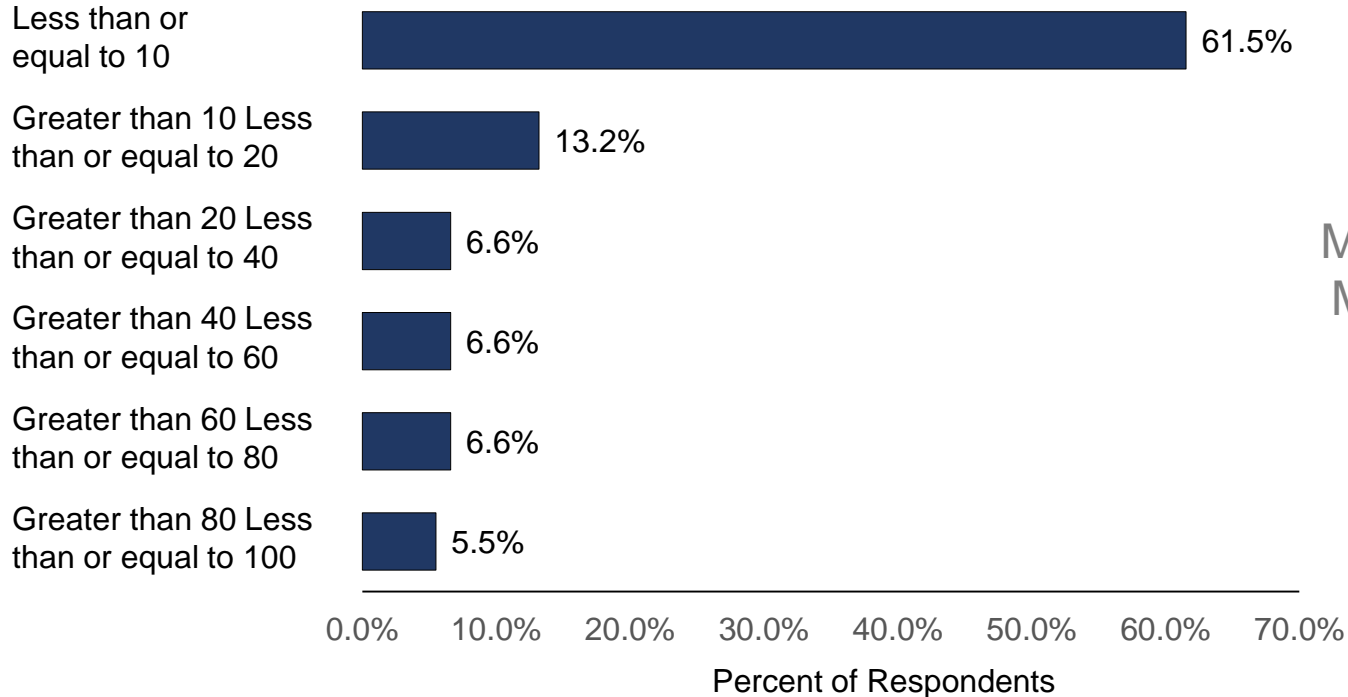
Within Your Supply Chain, Over the Next 12 Months, Rate the Likelihood of Occurrence and the Severity That Each of the Following Possible Scenarios Would Have on Your Business.



Directed Buy

The Majority of Respondents Indicate that Fewer than 10% of their Suppliers are Directed Buy

What percent (%) of your suppliers are customer required directed buy arrangements?



Median = 5%
Mean = 20%



OESA Automotive Supplier Barometer is a survey of the top executives of OESA regular member companies. The OESA Automotive Supplier Barometer takes the pulse of the suppliers' twelve month business sentiment. In addition, it provides a snapshot of the industry commercial issues, business environment and business strategies that influence the supplier industry. www.oesa.org.

Survey Methodology

- Data collected June 20-29 via invitation to online survey.
- Executives of OESA supplier companies.
- 102 survey responses were received.

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.

Antitrust Statement:

Respondents/participants should not contact competitors 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 and other terms of sale decisions and negotiating strategies should be handled on an individual company basis.



Contacts

Mike Jackson

Executive Director
Strategy and Research
248.430.5954
mjackson@oesa.org

Kathy Reiss

Director
Research and Industry Analysis
kreiss@oesa.org

Joe Zaciek

Manager
Research and Industry Analysis
248.430.5960
jzaciek@oesa.org

Original Equipment Suppliers Association
25925 Telegraph Road
Suite 350
Southfield, Michigan 48033

