



IHS Markit™

Automotive Industry Outlook:

Staying Ahead of the Curve in a Rapidly
Changing Landscape

March 2021

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A World Leader in Critical Information, Analytics and Solutions

Addressing Strategic Challenges with Interconnected Capabilities

50,000+

customers in over
140 countries

80%

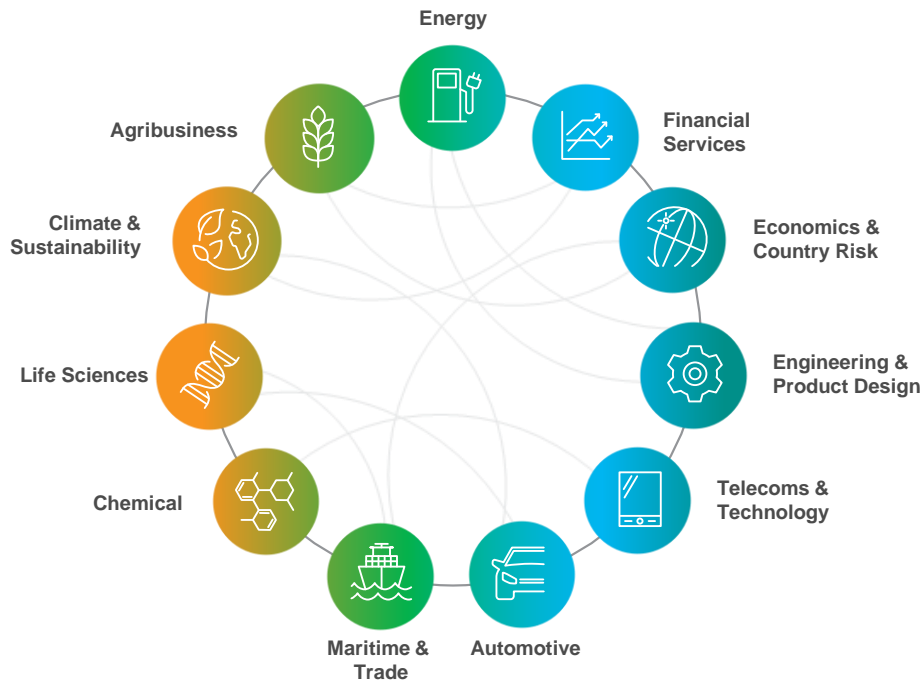
of the Fortune
Global 500

94/100

largest US corporates

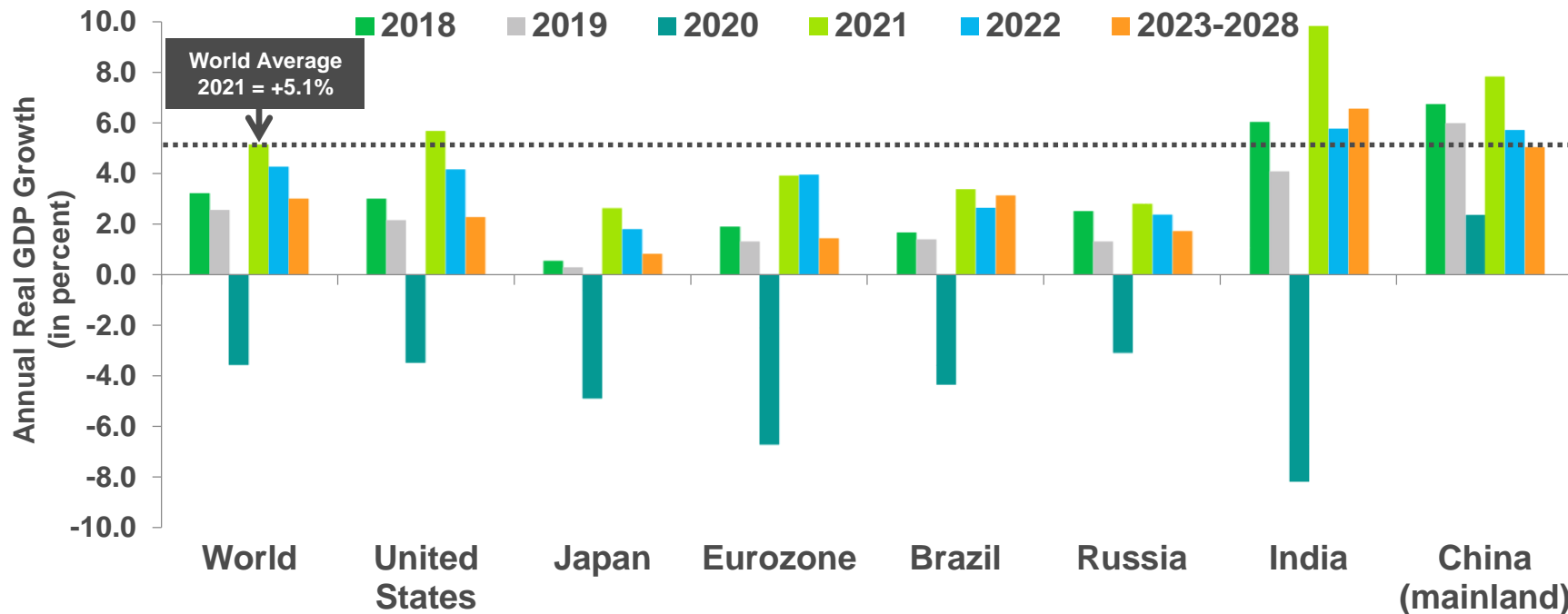
\$4B

annual revenue
NYSE: INFO



World Economic Growth

Global Growth Improved in February; World Real GDP is Projected to Increase 5.1% in 2021



Source: IHS Markit Data Insight

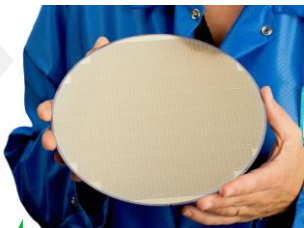
Introduction to Automotive Semiconductor: From Silicon to Cars

Silicon Ingots and Raw silicon wafers



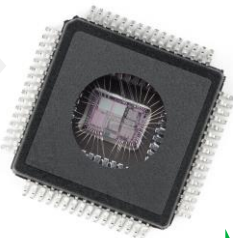
Material suppliers:
Shin-Etsu, Siltronic, Soitec

Processed wafers



Manufacturing cycle time: Months

Packaged and tested chips



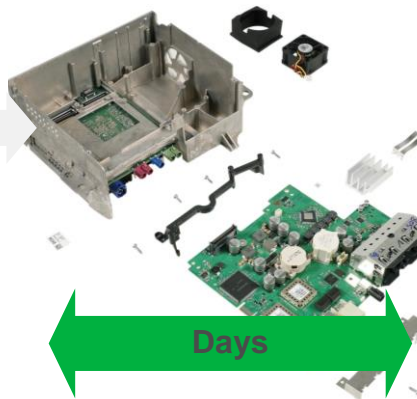
Semiconductor Suppliers
NXP, Infineon, Renesas, Texas Instruments, STMicroelectronics, ON Semi, Micron, Samsung...

Foundries (front end):
TSMC, Samsung, GlobalFoundries, UMC, Tower, DB Hitek, SMIC

Packaging & Test (back-end)
Amkor, ASE, UTAC

Service providers

Electronics Control Units* (ECU)



Days

Tier 1:
Bosch, Continental, Aptiv, Valeo, Harman, BorgWarner, Denso...

Car

- 1,000 – 1,400 chips / car
- \$427 chip value / car in 2020



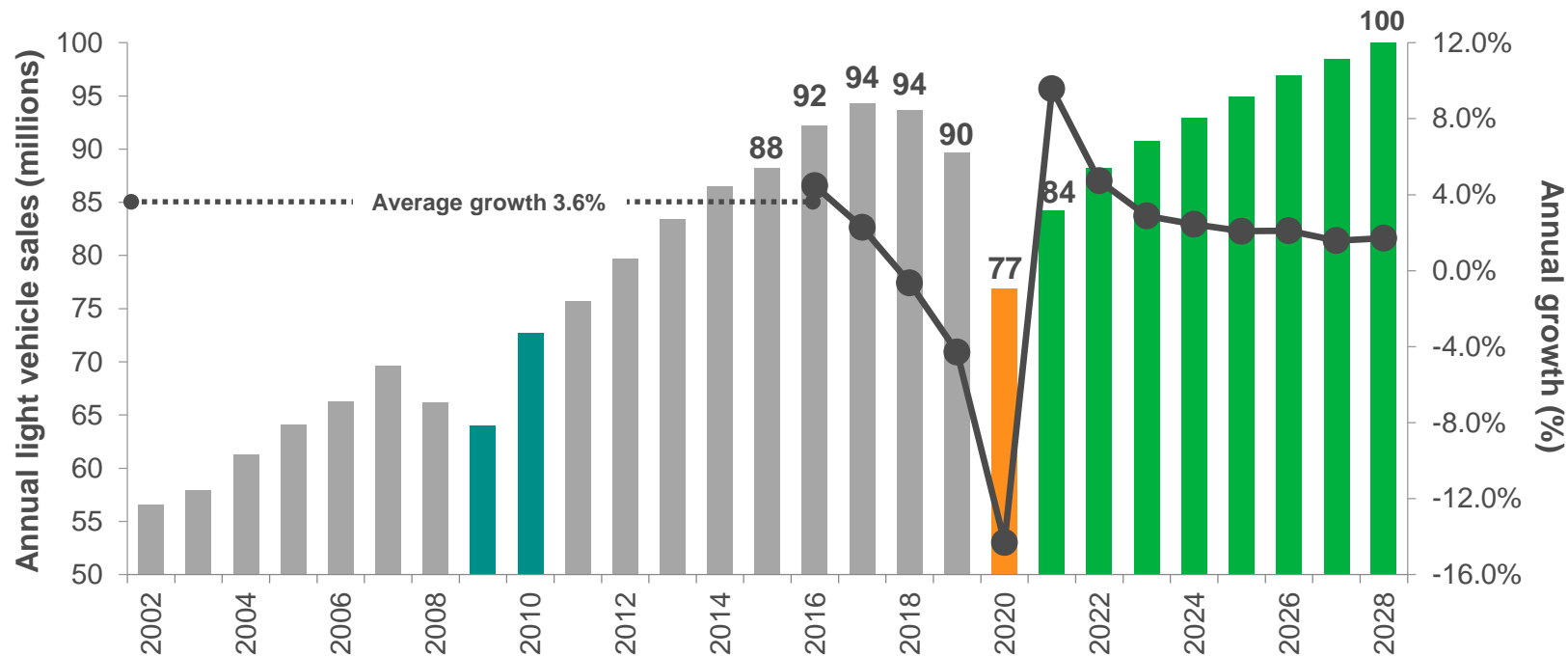
Hours

OEMs:
VW, Toyota, Toyota, GM, RNM...

* Picture from IHS Markit Teardown of Harman – Mercedes TTT9 Head-Unit

Global Light Vehicle Sales

COVID-19 Impacts the Near-Term Outlook; Aftermath Resets Expectations Longer-Term

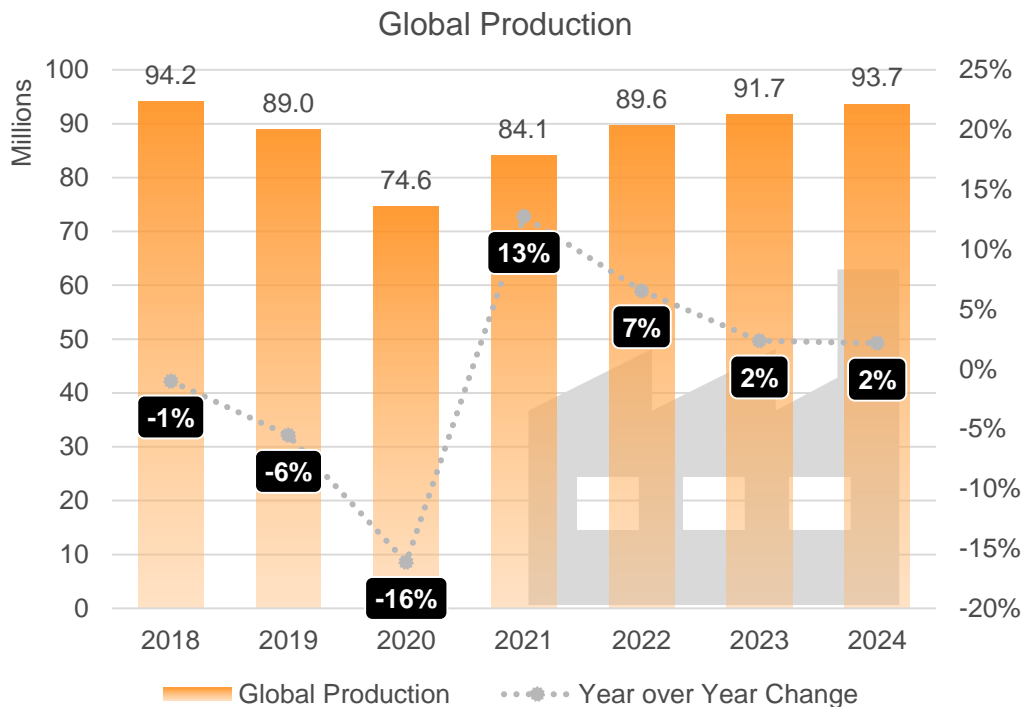


Source: IHS Markit Light Vehicle Sales Forecasts

MaaS: Mobility as a Service

Global Light Vehicle Production Overview

First Quarter 2021 Outlook Dominated by Semiconductor Shortages; Lost Volume Increases Over Prior Outlook as Severe Weather Effects and Japanese Earthquake Compound Challenges

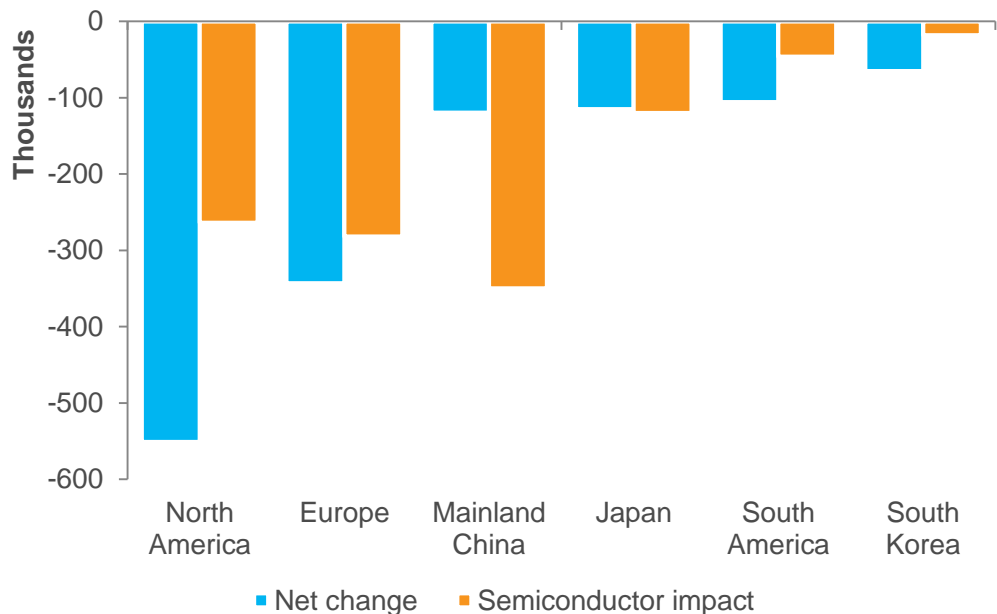


- ▲ South Asia raised largely on improved Indian outlook; possibly reflecting links to Japanese and South Korea supply chains – strong local sales are supportive
- ▲ MEA is boosted again on stronger Iranian outlook
- ▲ Current disruption does nothing to alleviate upside pressure from inventory requirements in H2
- ▼ March update takes 500,000 units from 2021 outlook as disruption intensifies in Europe, China, Americas and Japan/Korea
- ▼ Challenges beyond semiconductors, plastics shortages an emerging short-term factor, following bad severe weather impacts in North America
- ▼ Many regions experiencing secondary waves of COVID-19 infections and disruptive effects could emerge quickly, lockdown measures tightening again in many markets,
- ▼ Downside risk remains in the near-term given volatility of the situation and potential for shortages to extend deeper into the second quarter. Expect OEMs will continue to prioritize production of higher margin vehicles at the expense of less important offerings

Global Light Vehicle Production

Semiconductor and Other Supply Chain Pressures Present Near-Term Production Challenges

Global Light Vehicle Production: 1Q 2021 – Mar 2021 vs. Dec 2020



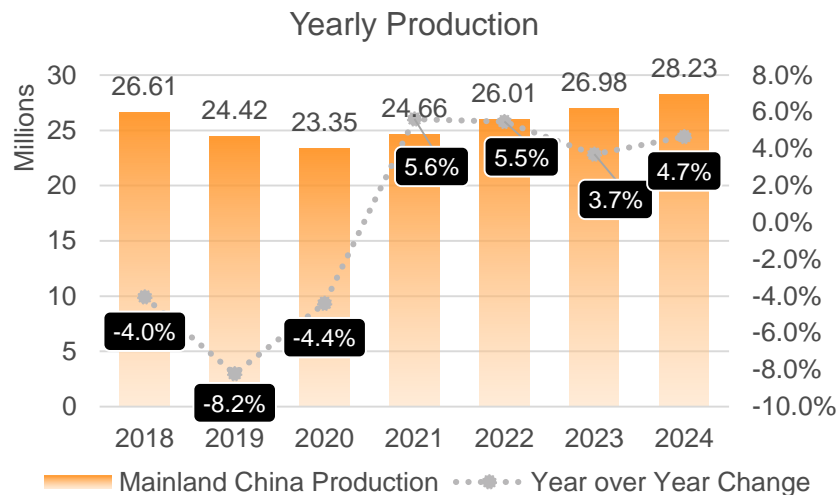
Source: IHS Markit

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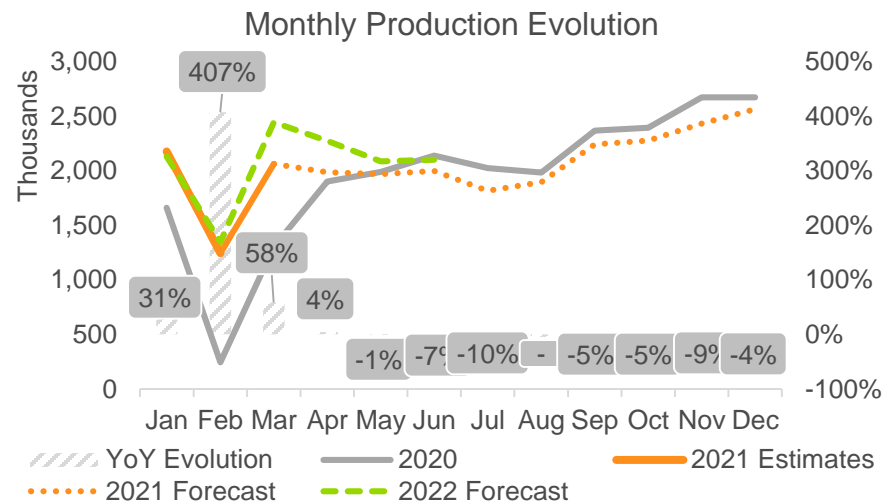
- Globally nearly 1.2M units estimated to be lost from 1Q due to semiconductor shortages
- Biggest disruptions:
 - Mainland China: 350,000 units
 - Europe: 282,000 units
 - North America: 264,000 units
- Semiconductor shortages are not the only influence on Q1 developments:
 - Upside in China from Lunar New Year
 - North America and Europe compounded by weather and ongoing public health and lockdown measures
 - Port congestion/disruptions impacting product flow
- Extent of disruption and long lead for semiconductors pointing to more protracted vehicle production constraints
- Recovery opportunities dissipating
- Risk in North America for trucks and utility vehicles amid low inventory levels

Mainland China Production Overview

Despite Strong Q1, Full-year Outlook is Reduced on Payback Particularly with Light Commercial Vehicles and Semiconductor Concerns



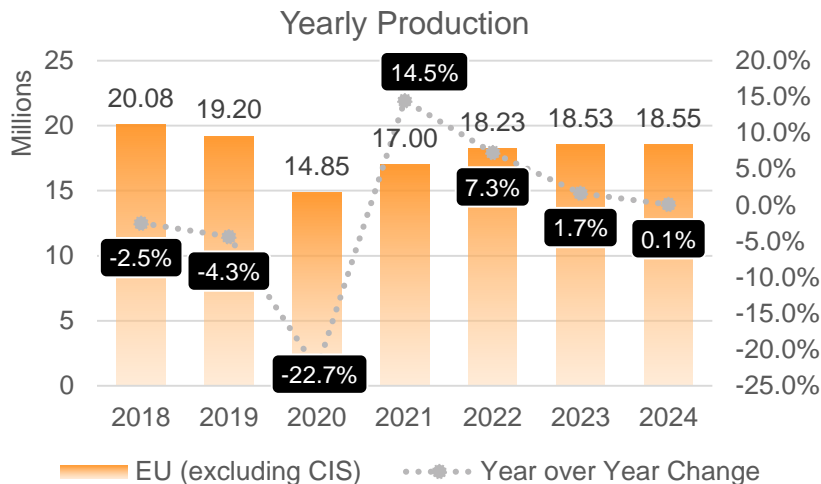
- ▲ The economic development has been upgraded again by increasing GDP growth prediction to 7.8% in 2021.
- ▲ Strong demand in Q1 2021 ahead of Lunar New Year holiday.
- ▲ Additional incentives have been released during National Congresses in March, further motivating the output and sales in following months.
- ▲ Commercial vehicle sector responds to infrastructure investment



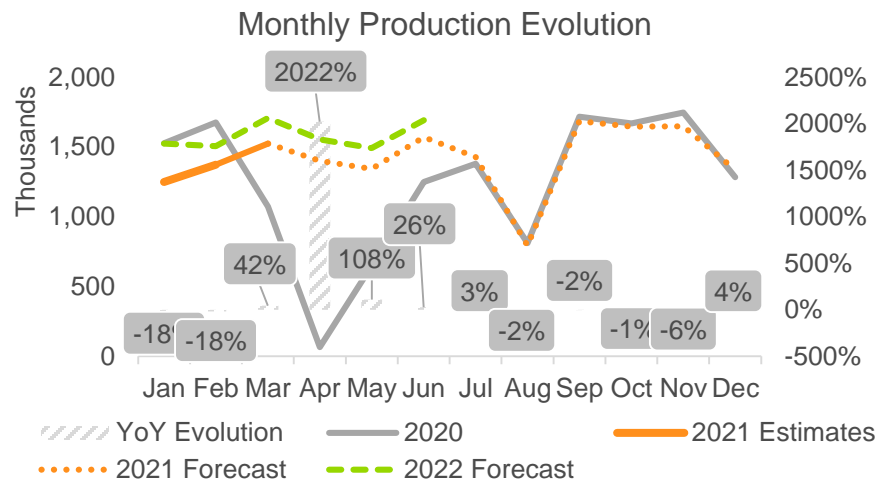
- ▼ The semiconductor shortage brings risks of plant shutdowns could further deteriorate in Q2 2021. The impact started to expand from JV brands to Chinese domestic brands.
- ▼ The polyamide (PA66) shortage owing to the snowstorm in US, would be another interruption in H1 2021.
- ▼ Some fluctuations in the stock market could bring uncertainties to potential demand.

Europe* (excluding CIS) Production Overview

Lockdowns Still Hammering Demand, Semiconductor Shortage Limiting Inventory Rebuild



- ▲ CY 2022 production revised up, catching-up for 2021 production losses
- ▲ Inventories remain at very low level as we enter Q2 2021.
- ▲ Government incentives support LEV sales in Western Europe
- ▲ Ongoing demand recovery in Turkey and in key export markets

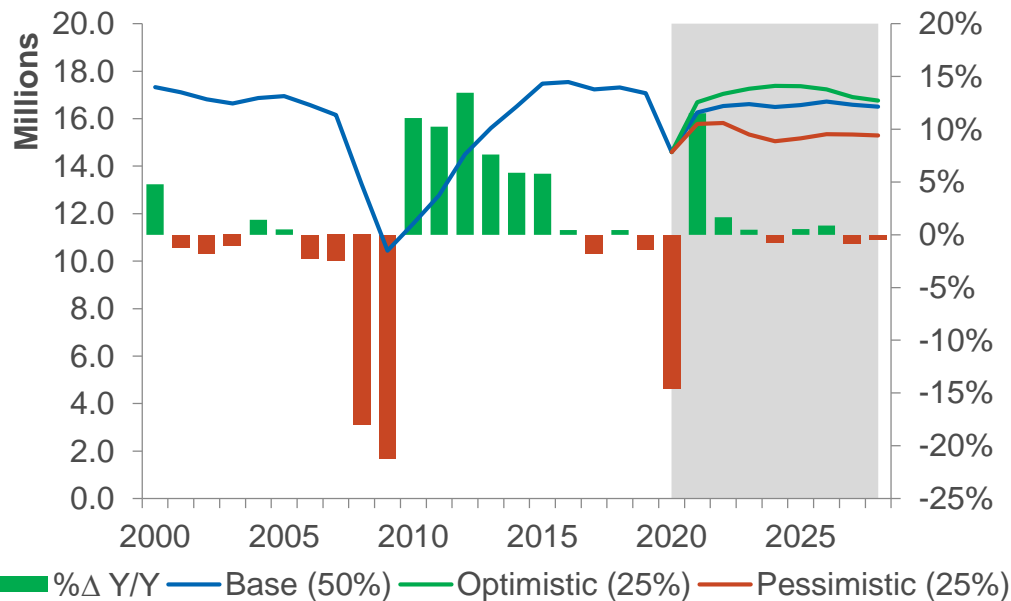


- ▼ 1H 2021 production revised down over 140,000 units, with marginal recovery through 2H 2021.
- ▼ Semiconductor shortage impacting virtually all operations while lockdown measures still impact vehicle retail in parts of Europe
- ▼ Other supply shortages potentially disrupting production (plastics, steel)
- ▼ CAFE compliance remains an important challenge with risks of OEM forcing overall volume reductions

US: Light Vehicle Sales Outlook

Shifting from a COVID Contraction to a Post-COVID Recovery

US Light Vehicle Sales



Source: IHS Markit

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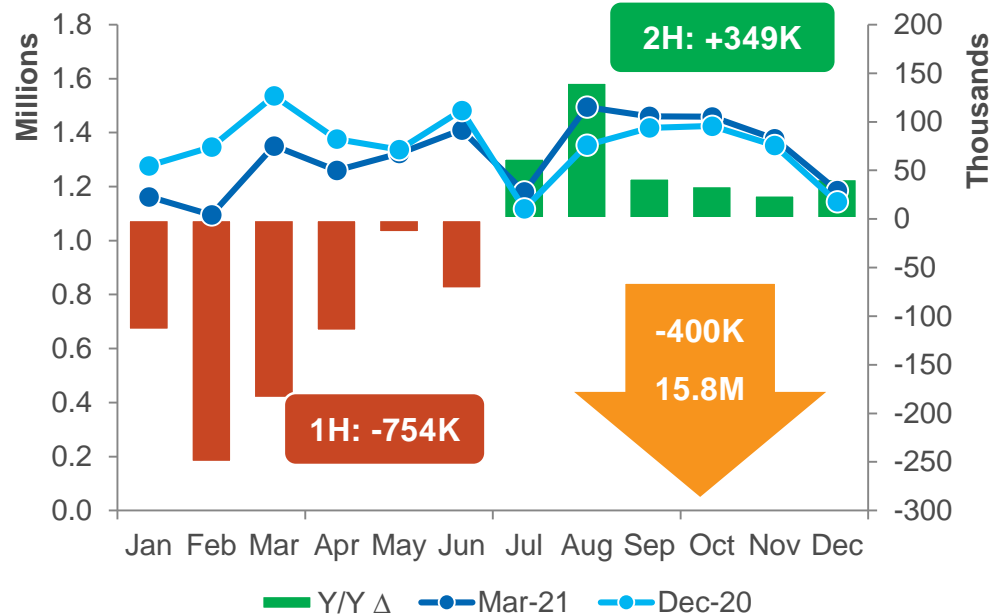
Economic issues

- US consumer outlook to improve, though recovery skewed
- Risk for additional COVID-19 related lockdowns diminishing
- Longer term pressure on OEM profitability
- Opportunities to find right customer based on vehicle age and scrappage
- Launches to accelerate, mix increasingly attractive
- Vehicle development costs rising
 - Regulatory compliance
 - Consumer contenting
- Market attractive from consumer perspective, risk shifting to lenders
 - Low interest rate environment

Semiconductor Shortages

Short-Term Issue with Lasting Implications

North America Light Vehicle Production: 2021



Source: IHS Markit

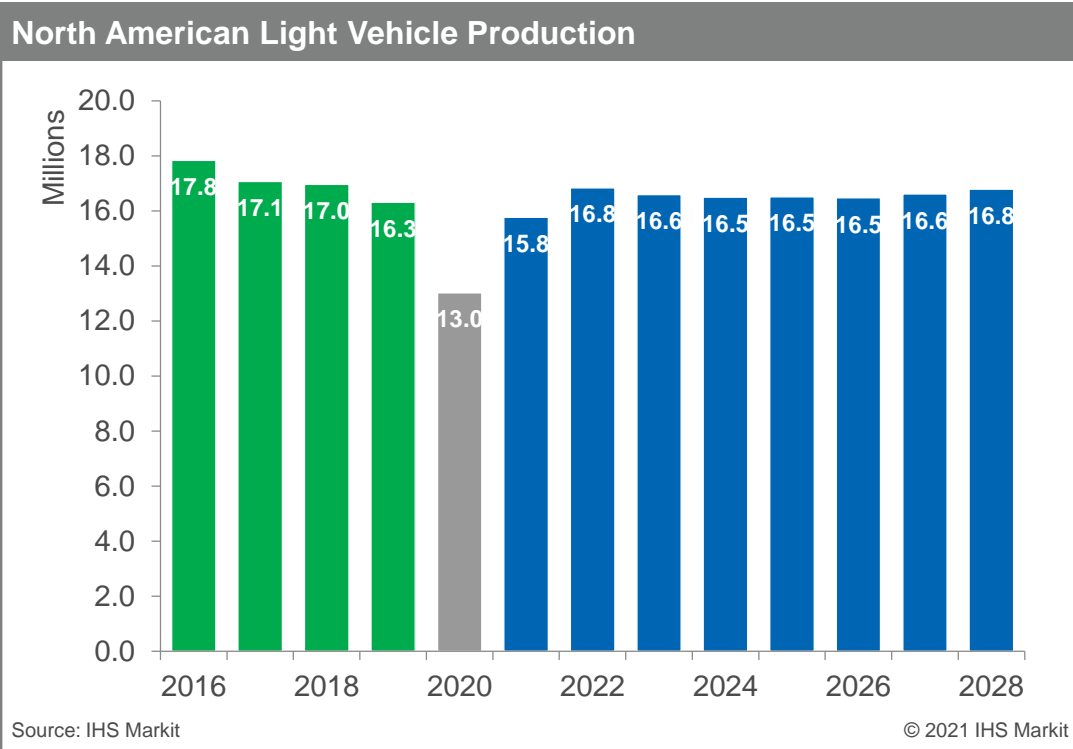
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Impact and issues:

- Short lead time notice
 - Who and when remains a question
 - Downtime
 - Reduced work schedules
 - Cancelled overtime
- Production rationalization efforts
- First-half 2021:
 - Semiconductor shortage impact
 - End of legacy models
 - Slower ramp-ups
 - Annual comparisons masks issue
- Second-half 2021:
 - Volume recovery beginning to look grim bolstering outlook for 2022
 - Summer shutdowns are a wild card

North American Light Vehicle Production

Deep COVID-Related Cut for 2020 but a Quicker Snapback than the Great Recession*



Short-term

- COVID-19 implications
 - 3.3M units or -20% in 2020
 - Program delays or timing slippage

*** Component shortages, labor availability, raw material pricing, etc. result in near-term downside risk**

- Inventory depletion and restocking

Long-term

- Capacity: How to get to 17M units?
 - Expansion and maximization
 - BEV implications; demand, redundancy, policy actions
 - Growth in regionalization
 - Phase two Mexico developments
- Life-cycle pressures
- USMCA and trade implications

North America Light Vehicle Production

2021 vs. 2020

OEM	2021F (000s)	2020F (000s)	% Δ	Δ Units (000s)
GM	2,764	2,388	15.7%	376
Ford	2,562	1,985	29.1%	577
Stellantis	2,232	1,808	23.5%	424
Detroit 3	7,558	6,181	22.3%	1,377
Toyota	1,968	1,600	23.0%	368
Honda	1,582	1,451	9.0%	131
Renault/Nissan	1,238	953	29.9%	285
Hyundai	878	698	25.8%	180
Asian 4	5,666	4,702	20.5%	964
VW	680	551	23.4%	129
BMW	476	417	14.1%	59
Daimler	352	334	5.4%	18
German 3	1,508	1,302	15.8%	206
Others	1,030	839	22.8%	191
Total	15,762	13,024	21.0%	2,738

Source: IHS Markit Light Vehicle Production Forecast



- Production growth as demand recovers from COVID-19 impact and inventories are restocked



- GM – Hummer EV, Bolt EUV, BrightDrop EV600



- Ford – Bronco and Maverick



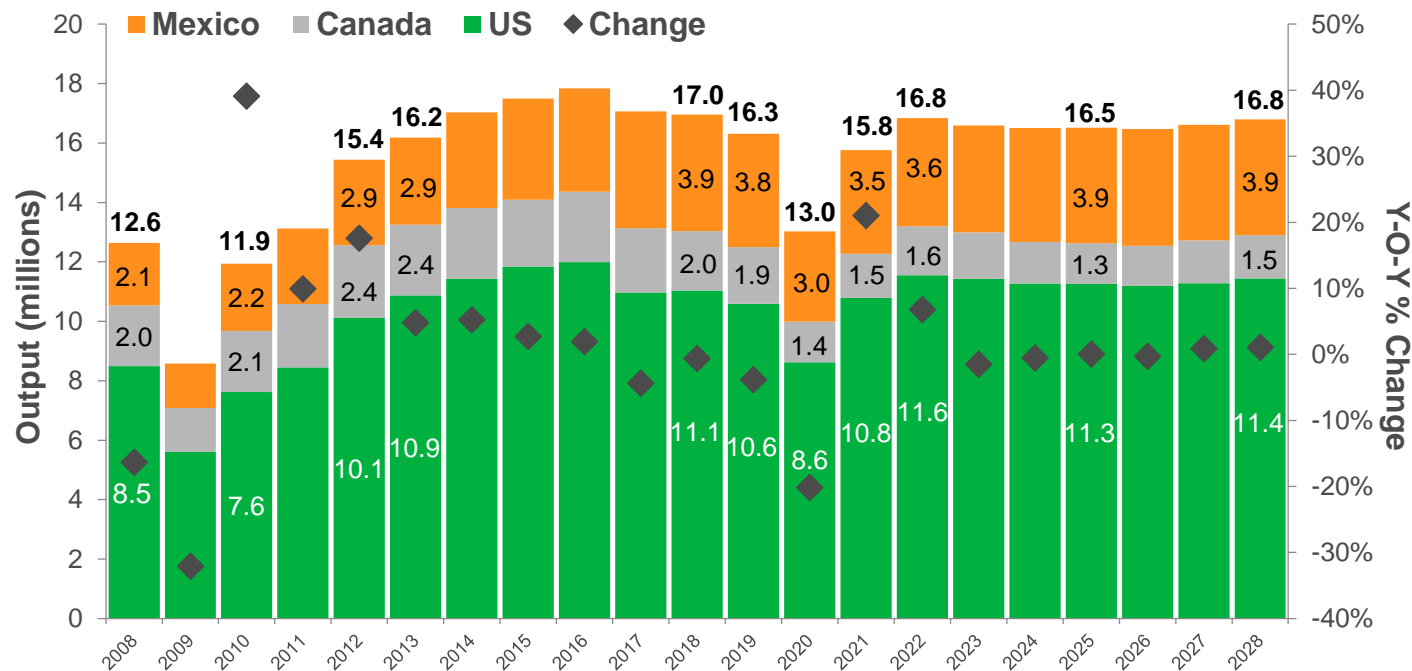
- Stellantis – Grand Cherokee and Wagoneer/Grand Wagoneer



- Key New Domestic launches include BMW 2-Series, Honda Civic; Hyundai Tucson; Lordstown Endurance; Lucid Air; Nissan Frontier & Pathfinder; Rivian R1S & R1T; Tesla Cybertruck, Model S & X; Toyota Corolla Cross & Tundra; Audi Q5 Sportback, etc.

Production Outlook

North American Light Vehicle Production by Country



2019 – 2028



76,000
CAGR = 0.2%



-449,000
CAGR = -3.0%

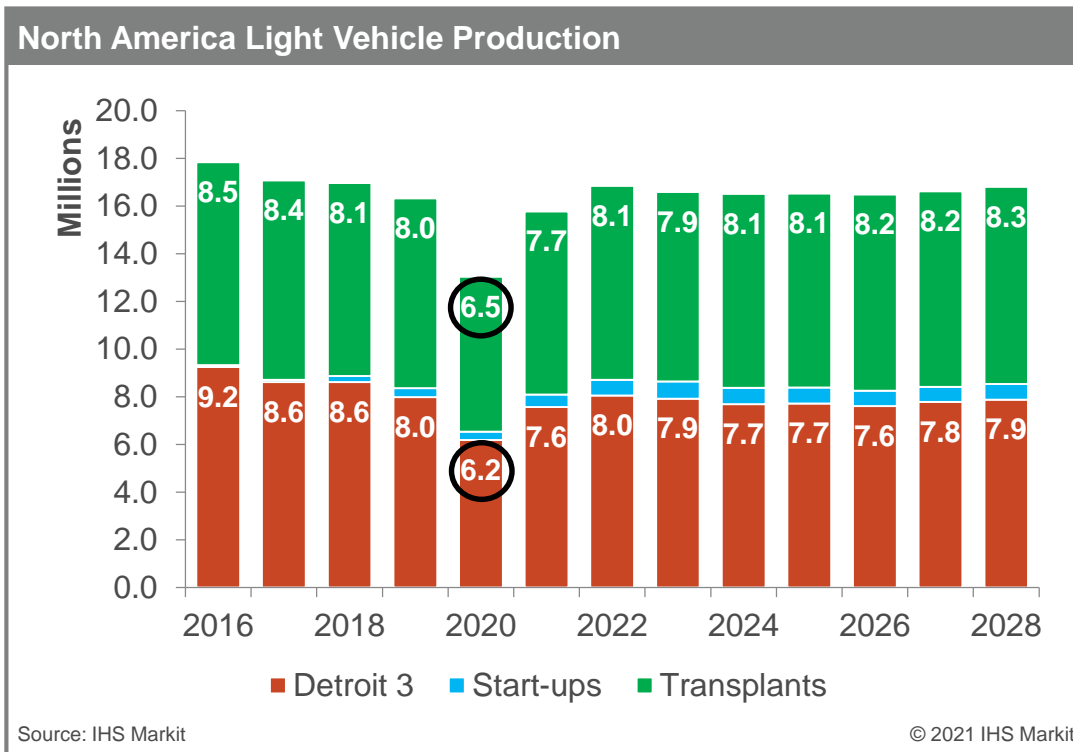


+851,000
CAGR = 0.9%

Source: IHS Markit Light Vehicle Production Forecast

North American Light Vehicle Production

COVID-19 Impacts Everyone, yet Customer Mix Continues to Shift



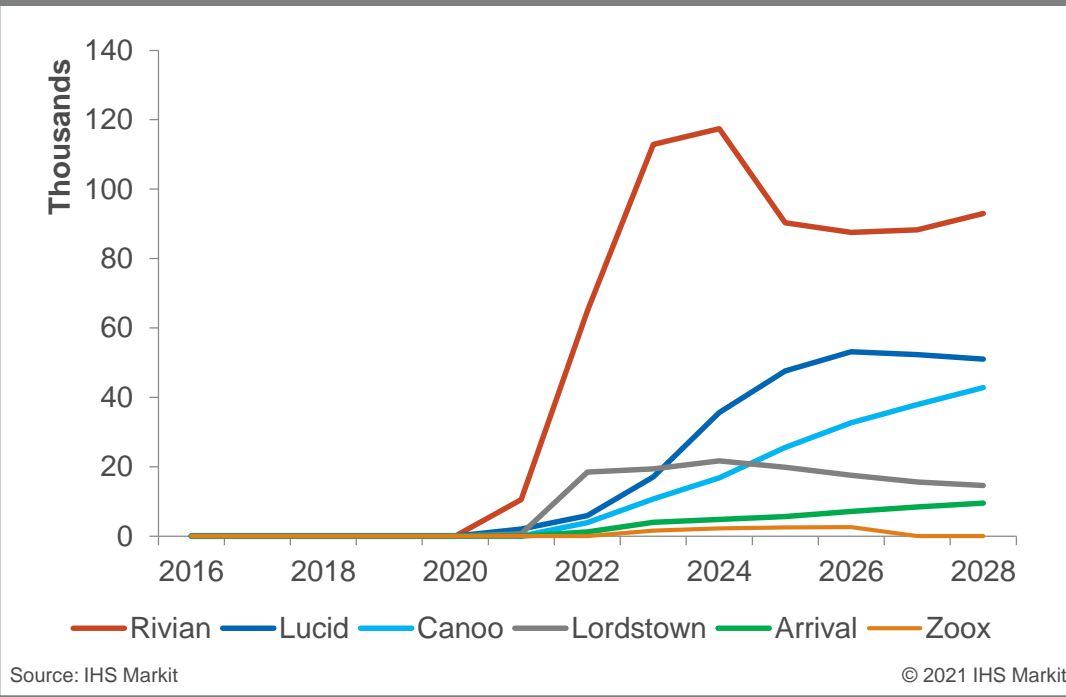
Divergent trajectories – 2019 to 2028

- **Domestics**
 - -107K units or -2.7%
 - Offshoring to China
 - Increasing shift to trucks
 - More closely tied to US sales
 - Build where you sell
- **Transplants**
 - +300K units or +3.1%
 - Localization
 - Capacity expansion
 - Global sourcing and increasing exports
- **Start-ups**
 - +286K units or +73.6%
 - Tesla largest component, although offshoring is slowing growth
 - Monitoring other start-ups

Start-ups

Risk vs. Reward from A to Z Amid Speculative Investment

North America Production

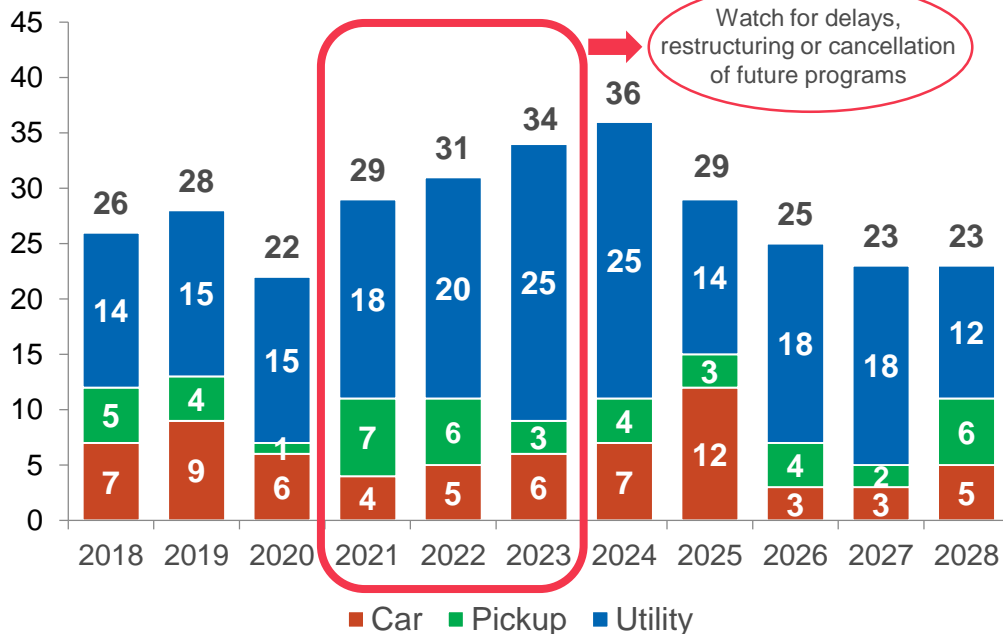


- **Arrival**
 - Bus and van markets
 - Low volume micro-factories
- **Canoo**
 - Subscription based business model
 - MPV, sedan, pickup, van
- **Lordstown Motors**
 - Pickup and van with commercial focus
- **Lucid Motors**
 - Luxury, performance focus
 - Expansive product plans to 2020
- **Rivian**
 - Premium, off-road focus
 - Partnerships: Amazon, Ford
- **Zoos**
 - Company ecosystem with L5 EV/AV

North America Light Vehicle Production Launches by Vehicle Type

Capital Needs Intensify with New Launch Activity; Timing Delays Due to COVID-19

North America Light Vehicle Production Launches



Source: IHS Markit

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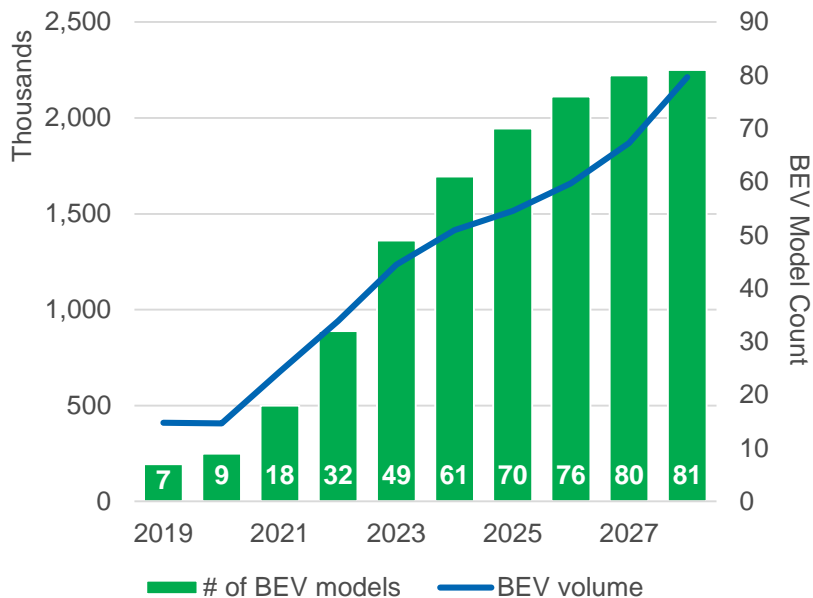
Volatility Extends to Launch Timings

- Launches in late 2021, 2022 and 2023 can be subject to further delay, reprioritization, rescoping or even cancellation
- If possible, OEMs will review portfolios to extend current vehicles – potentially integrating new minor/moderate facelifts to extend the lifecycles
- Utility vehicle expansion continues
 - Competition weighs on leaders
 - Splintering segmentation with pricing/margin/volume pressure
- BEV activity
 - 55 all-new nameplates
 - 13% or 2.2 million units of North American production by 2028
 - Product redundancy: ICE to BEV
 - Over 100 more BEVs as import or part of multi-energy nameplates
- Legacy programs as a hedge

North American Production

Tail Wagging the Dog, More BEVs than Consumers to Start

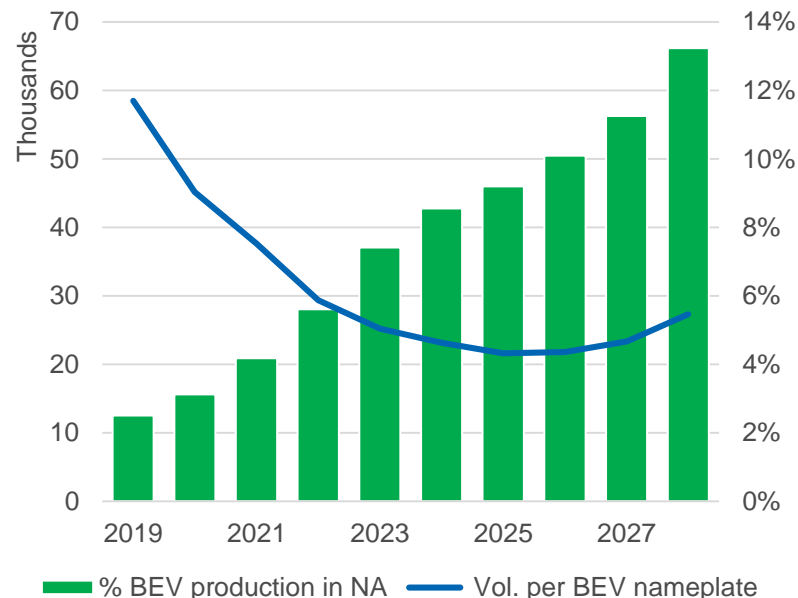
Battery Electric Vehicle Production and Model Count



Source: IHS Markit

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BEV Share of Production and Volume per Nameplate



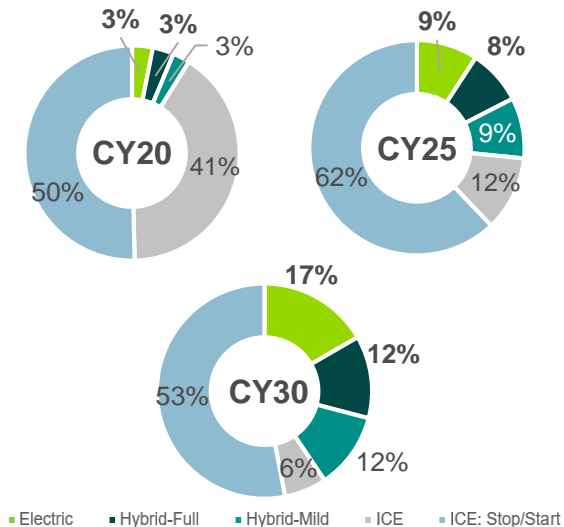
Source: IHS Markit

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Powertrain Technology Outlook

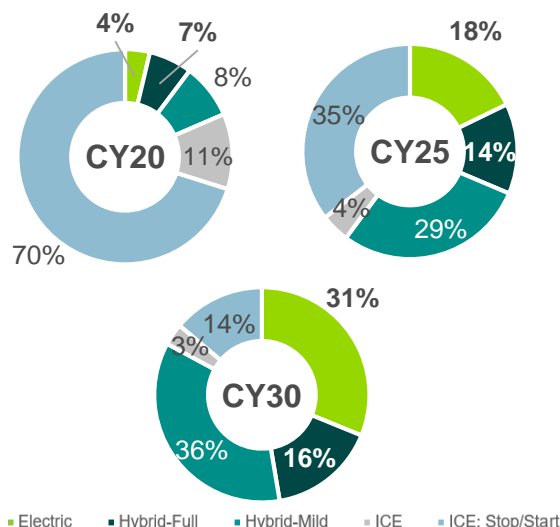
Regional Preferences and Incentives Result in a Varied Propulsion Mix; Watch the Model Count!

North America



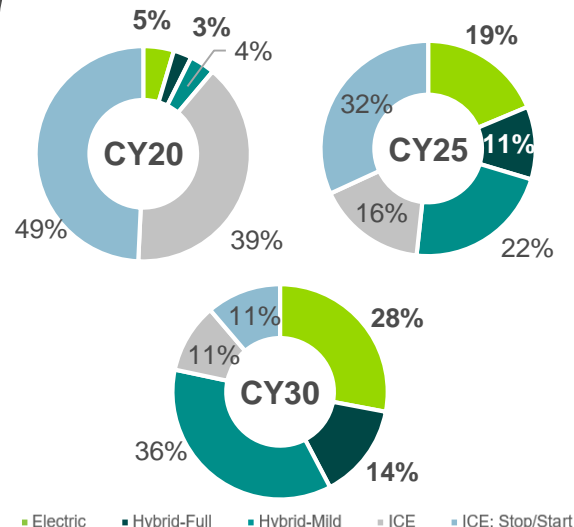
- SAFE rule = 1.5% stringency rate increase/yr vs. ~5%/yr for CAFE; Biden changes coming.
- PHEV and HEV production mix reduced post 2022, improved outlook for BEV.

Europe



- Propulsion forecast largely unchanged as little relief expected for CO₂ compliance.
- Target reduction of 15%/37.5% in 2025/2030 from 2021 level, potential for tougher targets.

Greater China



- Extended NEV subsidies/exemptions weaken pre-buy in 2020 & boost demand in 2021-22.
- NEV subsidies will come under increasing pressure; China to focus on tightening regs.

Thank You!

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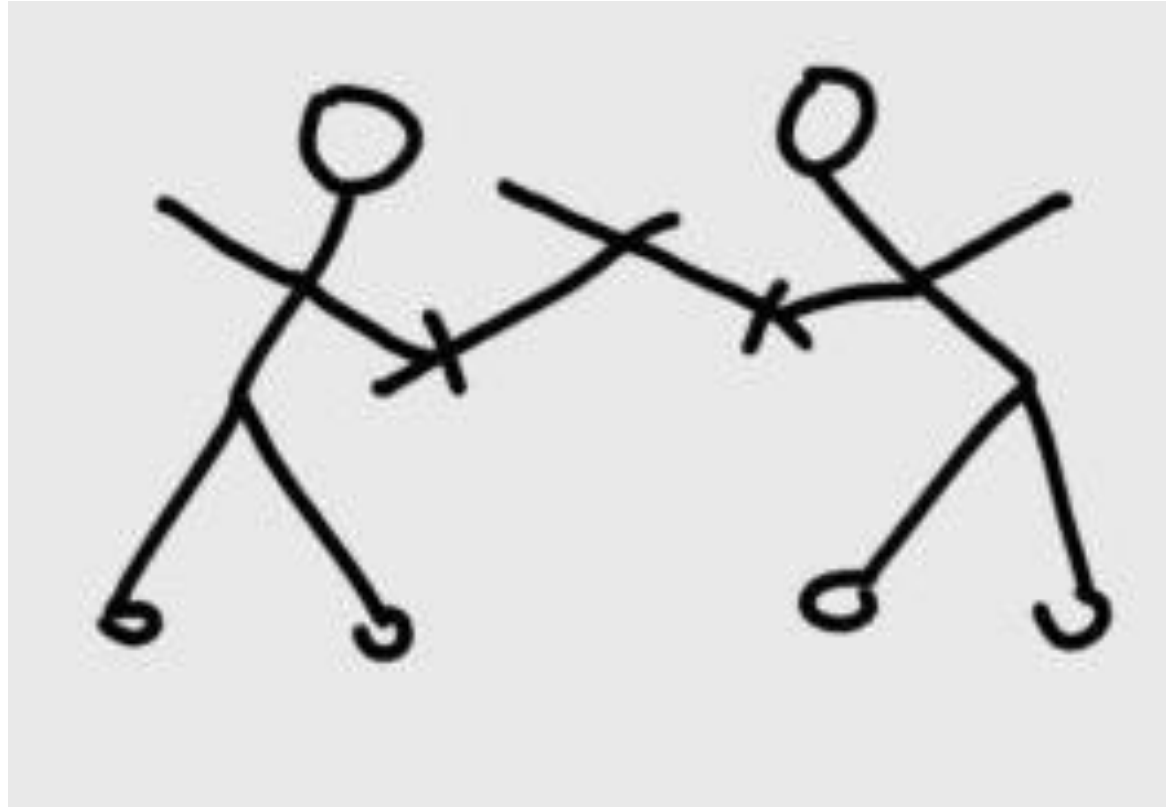


Seeing through the Fog of the Battle of the Forms

Sheldon Klein | Butzel Long | klein@butzel.com

The Battle of the Forms

[a/k/a, I Agreed to What???



Goals for the Presentation

- Understand the basics of contract formation.
- Understand what is the “Battle of the Forms”.
- Learn the basics of how to engage in the “Battle of the Forms”
- Understand the contract terms that are not in either side’s form

Contract Formation

Law School, Contracts, Day 1: “Mirror Image Rule”

- “Offer” → “I Accept Your Offer.” → **CONTRACT**
- If Acceptance ≠ Offer, no Contract (Counter-offer).

Real World

- Form language exchanged without ever resolving, or even paying attention to, the differences
- Ignores reality to say “no contract” when parties are doing business and think there is a contract.

“Battle of the Forms”

Legal rules for (trying to) sorting out the mess

Do I have a Contract?

§ 2-204. Formation in General.

- (1) A contract for sale of goods may be made in any manner sufficient to show agreement, including conduct by both parties which recognizes the existence of such a contract.
- (2) An agreement sufficient to constitute a contract for sale may be found even though the moment of its making is undetermined.
- (3) Even though one or more terms are left open a contract for sale does not fail for indefiniteness if the parties have intended to make a contract and there is a reasonably certain basis for giving an appropriate remedy.

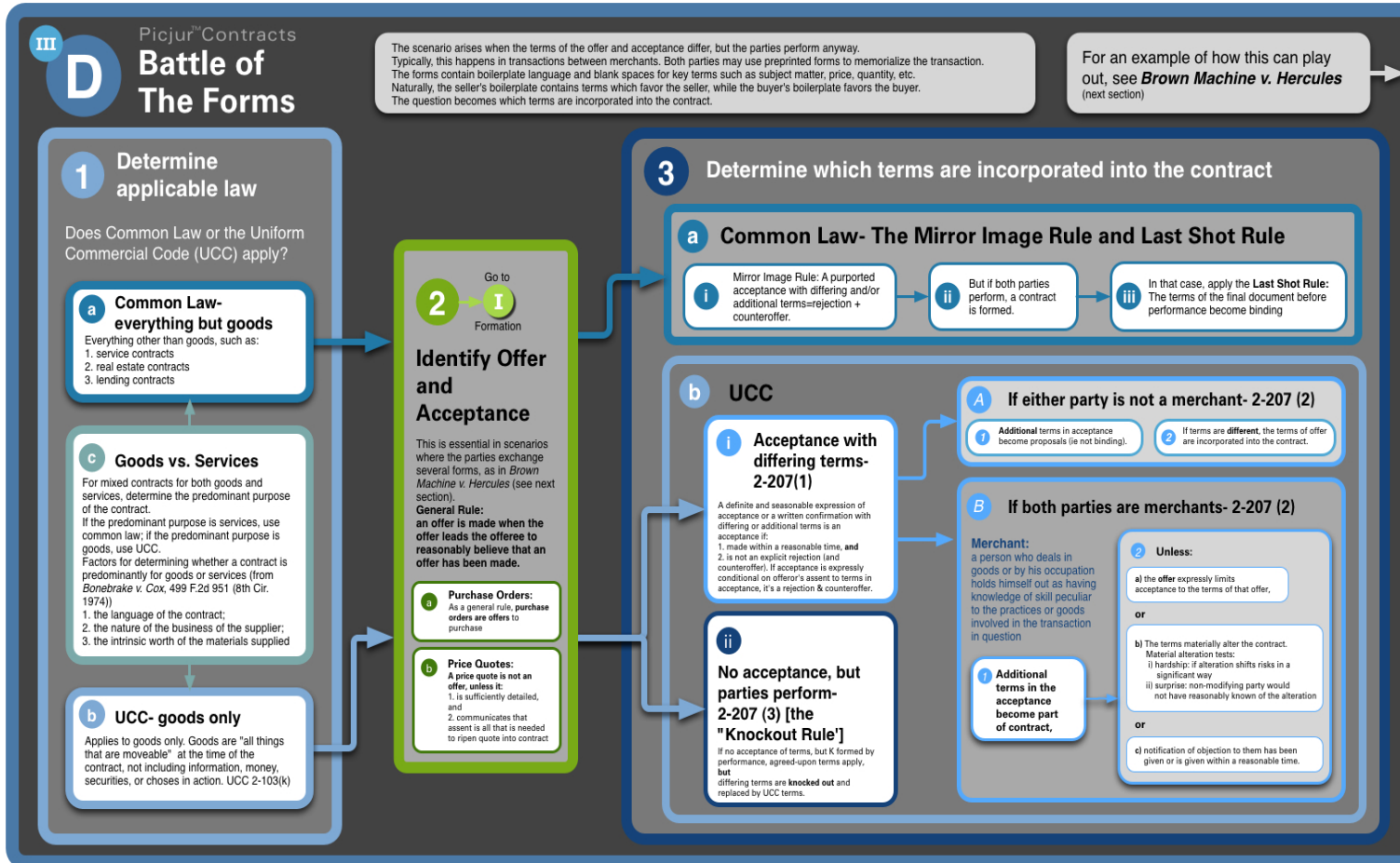
Rule 1: Lawyers are Good.

An Actual Agreement is Better.



“There is no language that a lawyer can put on a form that will always assure his client of forming a contract on his client's own terms. . . . If one must have a term, that party should bargain with the other party for that term; a client should not get it by his lawyer's sleight of hand. If a seller must have the term to reduce liability but cannot strike a bargain for it, his only answer may be to raise his price, buy insurance, or—as a last resort—have an extra martini every evening and do not capitalize the corporation too heavily.”

In a Nutshell



“Everything in war is very simple. But the simplest thing is difficult.”

Carl von Clausewitz

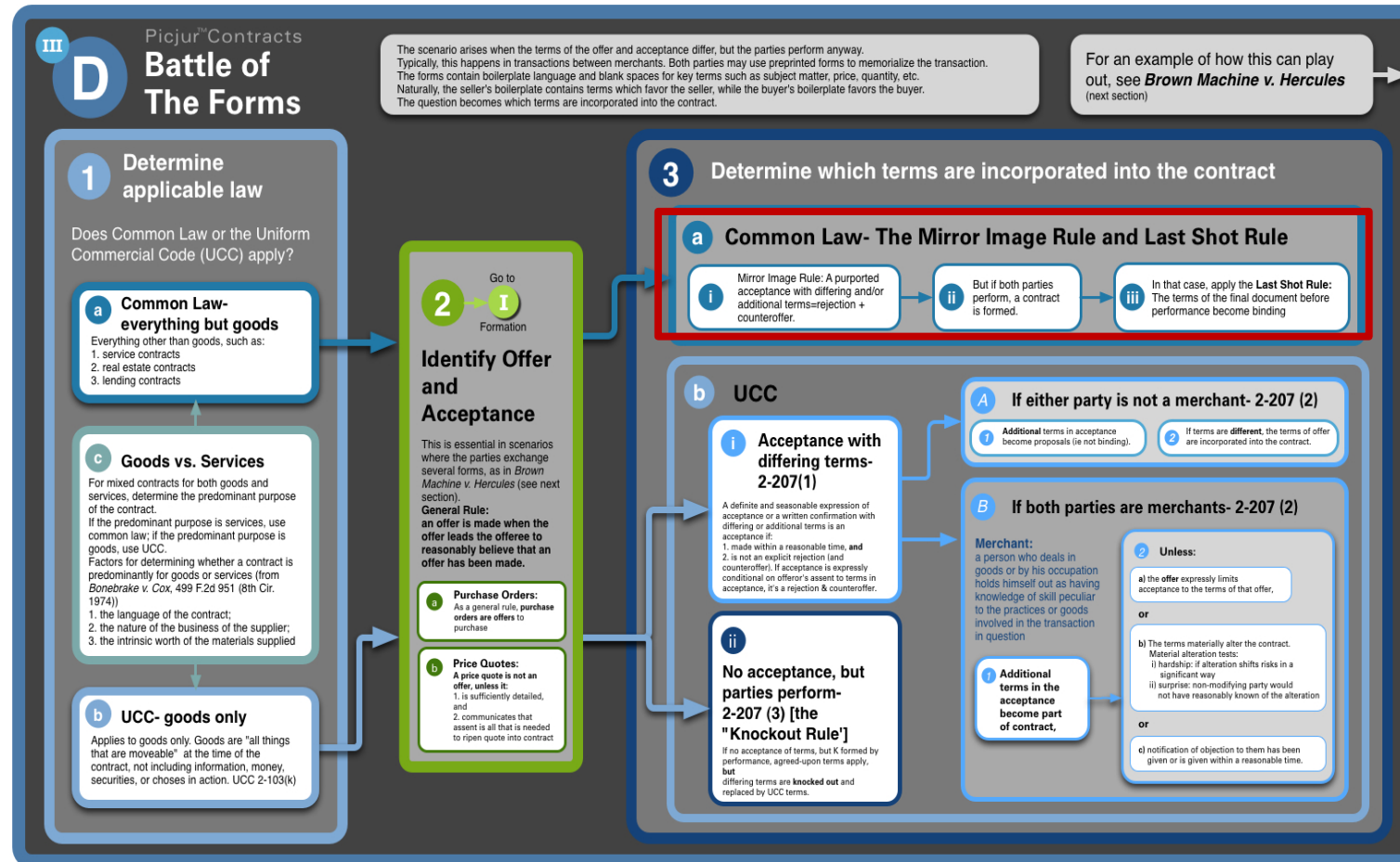
Goods or Services?

- Battle of the Form rules are different for Goods and Services.
- Goods if you are buying raw parts and then selling the finished parts
- Services if you are paid a fee for finishing your customer's parts
- If mix, “predominant purpose” of the transaction.

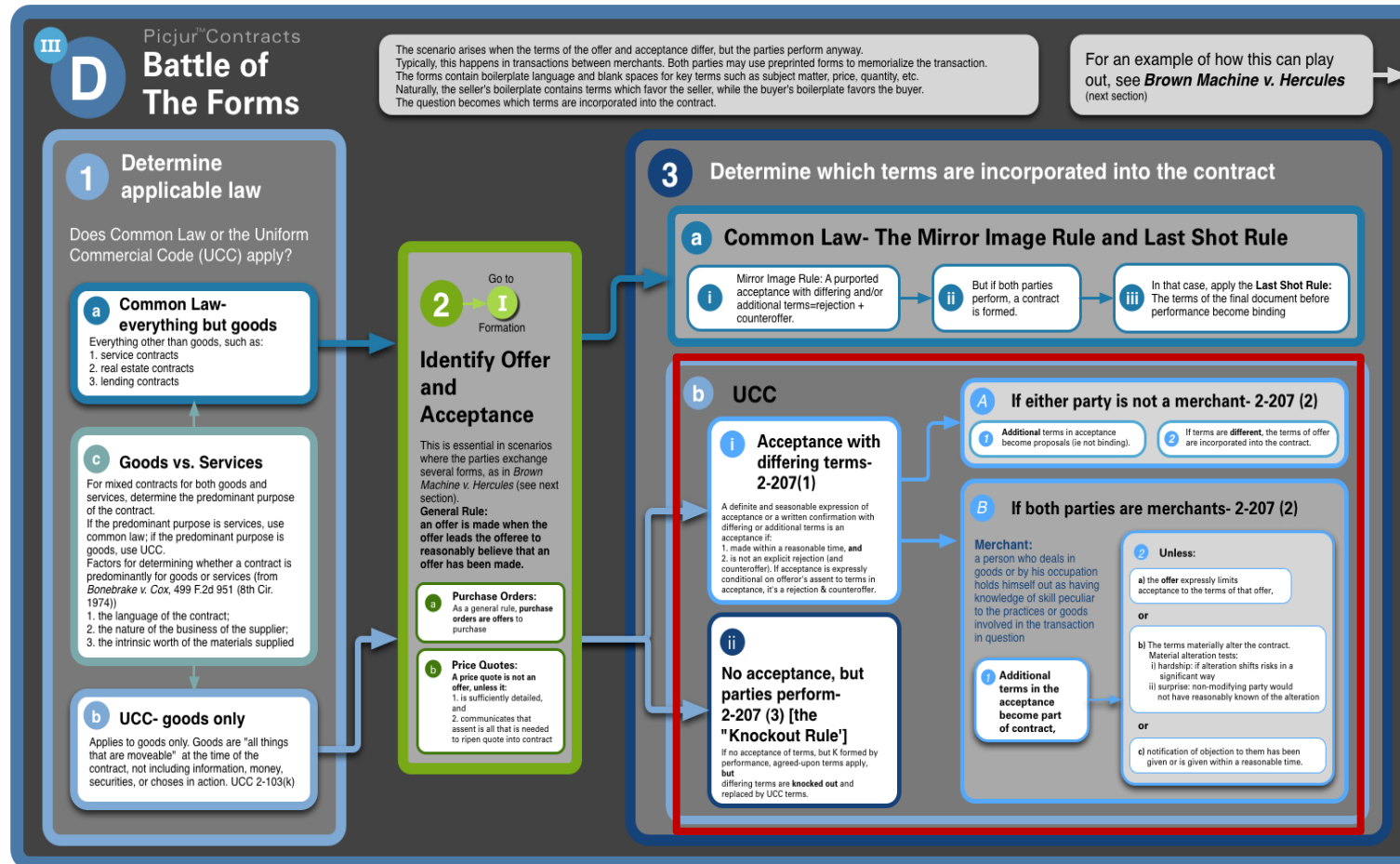
Offer or Acceptance?

- Fundamental to contract formation and battle of the forms analysis, but application is slippery
- “An **offer** is the manifestation of willingness to enter into a bargain, so made as to justify another person in understanding that his assent to that bargain is invited and will conclude it.” [R2k 24]
- “**Acceptance** of an offer is a manifestation of assent to the terms thereof made by the offeree in a manner invited or required by the offer.” [R2k 50]
- Is an RFP or ITB an offer or nothing?
Is Bid or Proposal an offer, an acceptance, a counter-offer or nothing?
Is PO issued after Bid or Proposal an offer, an acceptance, a counter-offer or nothing?

If You Sell Services



If You Sell Goods



Seller's Quotation Best Practices

- Designate it as an “offer.”
- Have Terms and Conditions of Sale
- Incorporate them in your Offer, your Acceptances and your Invoices.
- Always use clear and precise language.
- Do not refer to a RFQ or other external documents in general but only to the necessary specific provisions (e.g., Buyer's technical specifications).
- Object to any additional or different terms in prior or subsequent documents.
- Get in the last word.

Sample Quotation

Possible Language for Quotation forms

This is an offer. This quotation and any resulting contract are subject to the Seller's General Terms and Conditions of Sale placed on the reverse side, elsewhere in this quotation or Seller's website, and available by written request. Notice is hereby given of objection to any additional or different terms in any acceptance or other response.

What Documents Count?

- Some of the documents that could constitute the “Theatre of the Battle” are:
 - RFQs and Quotations
 - Sourcing Letter
 - Purchase Order
 - Buyer's and Seller's Standard Terms and Conditions
 - Documents incorporated in the contract by reference
(e.g., drawings, specifications, standards, and quality manuals.)
 - Invoice
 - Correspondence and E-mails

Beyond the Four Corners

- The law can supply “gap fillers” for missing terms (especially for Goods):
 - Price (reasonable);
 - Number of Deliveries (one delivery);
 - Place of Delivery (Seller’s place of business);
 - Time of Delivery (reasonable);
 - Length of Contract (reasonable);
 - Time of Payment (due at the time and place of the Buyer’s receipt of the goods); and
 - Risk of Loss (passes on the Buyer’s receipt of the goods).
 - Warranties (implied good title, non-infringement, marketability, and possibly fitness for particular purpose).

Other Sources of Contract Terms

- The course of dealing between the parties in other contracts.
- The course of performance by the parties in the same contract.
- Industry Standards (“Usage of Trade”).
- Documents referenced in the contract (e.g., quality manuals).
- So where do we look for contract terms:
- Mutually agreed.
- GAP fillers.
- Four sources above.
- Winners in the Battle of the Forms.

Take Aways

- The Battle of the Forms is a last resort. Whenever possible, negotiate a written agreement that includes your “must haves.”
- However, this is not always possible. Therefore, it is important for you, and your people in the trenches, to understand the “rules of engagement.”
- Well written agreements are a cost-effective risk management tool.
- You cannot control the terms if you don't have them. Have and use well-written Terms of Sale
- Do not blame the law. You volunteer for battle by beginning performance without a clear, acceptable agreement.

“The events which can not be prevented, must be directed.”

Klemens von Metternich

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QUESTIONS?

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