



Managing Automotive Export Sales Planning and Order Fulfillment in a Volatile, Uncertain, Complex and Ambiguous World

Executive Summary

The term VUCA – volatility, uncertainty, complexity and ambiguity – originated in the U.S. military to describe the nature of today's tumultuous world. This term, in our view, is more applicable than ever to the business context in which today's automotive industry operates. The industry, for example, has faced and overcome demand- and supply-side disasters in just a few short years.

First, the Great Recession (beginning in 2008) severely increased demand volatility in all markets, leading to large inventory surpluses and shortages across the value chain. Then, two years later, just as the market began to find its footing, natural disasters, notably the 2011 Tohoku earthquake in Japan and massive floods in Thailand, created huge supply-side uncertainties. In addition, the tumultuous macroeconomic environment and corresponding ambiguity in generating reliable forecasts has worsened the situation for supply chain and sales planning business executives.

Hence, given persistent VUCA, automotive market leaders and analysts are in disagreement regarding the industry's future. However, one constant is the view that future industry growth will be more heavily dependent on the traditional markets outside of the U.S., Canada, Europe

and Japan. While these developed markets will continue to hold a significant share of the world's automotive marketplace, it is only the combined vehicle sales in developing countries that will fuel future growth and ensure viability and survival for car companies.

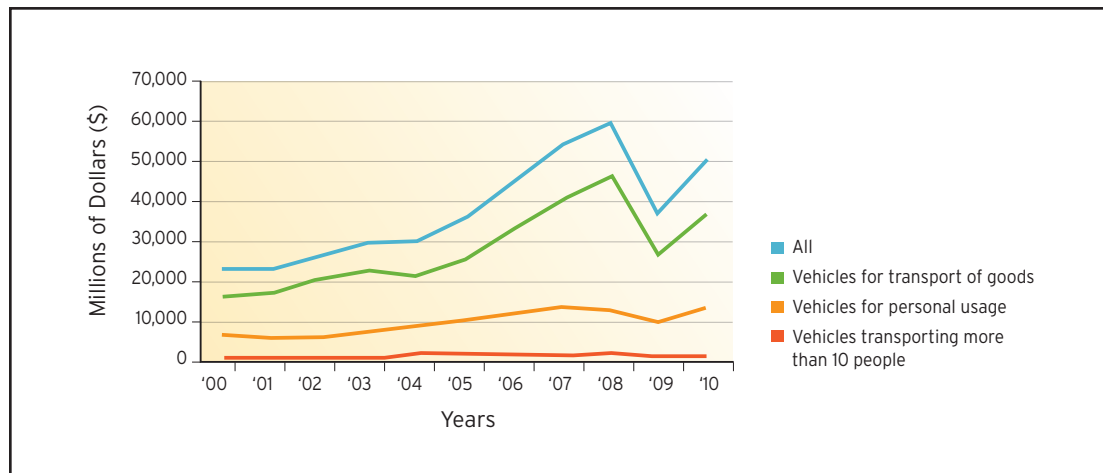
U.S.-based automobile manufacturers and sales organizations have typically referred to these growth markets outside of developed economies as "export markets." Typically, these organizations have sold vehicles manufactured either in North America or elsewhere in the world through separate business units responsible for sales planning and order fulfillment business functions. This has caused massive disaggregation of the supply planning process.

Although most OEMs and their U.S. subsidiaries claim to have state-of-the-art planning systems, a closer look reveals manual and inefficient processes or operations when it comes to the handling of vehicle sales to the export markets. This lack of strategic visibility and inflexible systems makes the life of supply chain executives extremely difficult as they grapple with VUCA world forces without being adequately equipped to do so.

We believe that VUCA forces, if not dealt with at the right time, can lead to paralyzing FUD (fear,



U.S. Domestic Automotive Exports



Source: Adapted from U.S. International Trade Commission data
Figure 1

uncertainty and doubt). Hence, our premise is that to succeed, OEMs and their U.S. subsidiaries need systems and processes aligned to changing market dynamics to better contend with unplanned disruptions, supply capabilities and strategic direction. In doing so, they can provide focused solutions to manage demand-side volatility, supply-side uncertainty, macroeconomic and decision-making complexity, and ambiguity around organizational objectives.

Rise of Automotive Export Markets to Developing Countries

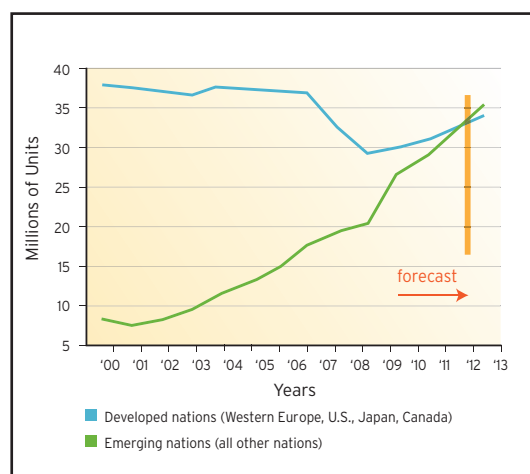
A recent paper by the U.S. Department of Commerce shows that domestic automotive exports totaled \$45 billion in 2010, with exports of roughly 2.2 million vehicles (see Figure 1). The trend continued in 2011, with YTD exports up by over 25% by July 2011 compared with July 2010. We believe these data points confirm the comeback of rising exports, a segment that experienced downward pressure in late 2008 and 2009.

Although a majority of automotive exports from the U.S. were shipped to developed economies such as Canada, Germany and Japan, exports to emerging markets such as Saudi Arabia, China, the UAE, Latin America, Mexico and Central and Eastern Europe are rising at a much faster rate, currently accounting for more than 20% of overall U.S. automotive exports. Leading macroeconomic research from Scotiabank confirms

this trend and provides an optimistic forecast for emerging market demand in the near future (see Figure 2). For example, a recent global auto report forecasts that car sales in emerging nations will surpass those in developed nations by 2013.

Thus, current trends indicate that vehicle sales in emerging markets are likely to overtake sales in developed markets a few years from now.

Car Sales in Emerging Nations to Surpass Developed Countries by 2013



Source: Scotiabank Group's Global Economic Research unit

Figure 2

Current State

- **Export sales planning:** Most U.S.-based vehicle sellers today have standard “textbook” processes when it comes to sales planning for export markets. These planning techniques involve both top-down and bottom-up sales planning approaches, with an ability to adjust the yearly forecasts once per month based on actual sales volumes.

However, the planning for export markets is becoming increasingly difficult and inaccurate due to the volatile macroeconomic factors prevailing in these markets, as well as unplanned events – such as sudden interest rate changes, government policy changes, unexpected labor disputes, port shutdowns, natural disasters, etc. – leading to sudden changes in demand and supply conditions across individual export markets. Typically, business executives tasked with export sales planning activities are finding it difficult to answer questions such as:

- How do I meet the demand for a popular model if manufacturing is delayed by a few months due to supply shortages?
- What happens if the government in a destination export country announces a strategy for buying fuel-efficient vehicles? What is the immediate impact on the number of expected vehicle orders?
- How would monthly and quarterly sales plans change if revenue and sales targets for the export unit are changed during management review meetings? How will this impact targets for the individual export markets?
- If the interest rate for car loans in a particular export market changes by 20 or 25 basis points, how will it impact the demand for a particular vehicle model in that export market?
- If the currency exchange rate changes by 20 or 25 basis points, how will it impact the top and bottom lines for that export market?

The complex business situation is often aggravated by the presence of disparate export sales planning systems that lack integration with other domestic sales planning systems and do not have state-of-the-art analytical horsepower. This scenario results in considerable manual effort for

exception management around sales planning activities rather than productive effort targeted at better future sales planning.

- **Order fulfillment and operational visibility:** Since the global economic downturn of 2008 and in the face of the recent spate of natural disasters, the vulnerability of the automotive supply chain (directly impacting export units) has also increased due to multiple factors. These factors have raised the visibility of flaws embedded in a supply chain built around stable demand. Additional elements that affect volatility include lean practices, delocalization of production and a reduced supply base. Even though lean manufacturing is fundamental to eliminating waste and accelerating throughput in times of stability, it can lead to sub-optimization. Considering the complexities involved in making such decisions and the scenario evaluations related to supply chain impacts amid supply disruptions, automotive export units that respond with adaptability and flexibility will gain competitive advantage.

We believe business teams find it hard to answer order fulfillment-related questions (listed below), as they are not equipped to handle the volatility and constant changes associated with VUCA world forces:

- How best to provide an accurate estimated time of arrival (ETA) to all dealers across the export economy? How to prioritize orders and evaluate their impact, given supply chain disruptions?
- What more can be done to optimize transportation costs? How to divert vehicles from one market to another most effectively in the face of inventory shortages?
- How to ensure optimum inventory for each export market given uncertain conditions?

We believe the fundamental reason behind the inability to answer these questions is the lack of responsive processes and tools. Hence, to better deal with VUCA forces, we recommend a process that includes developing greater agility in export planning and order fulfillment business processes, accompanied by an acknowledgment of the reality of VUCA world forces. From there, we suggest defining a roadmap for implementing necessary elements of sensitivity, process changes and corresponding technology enablers.

Understanding the VUCA World

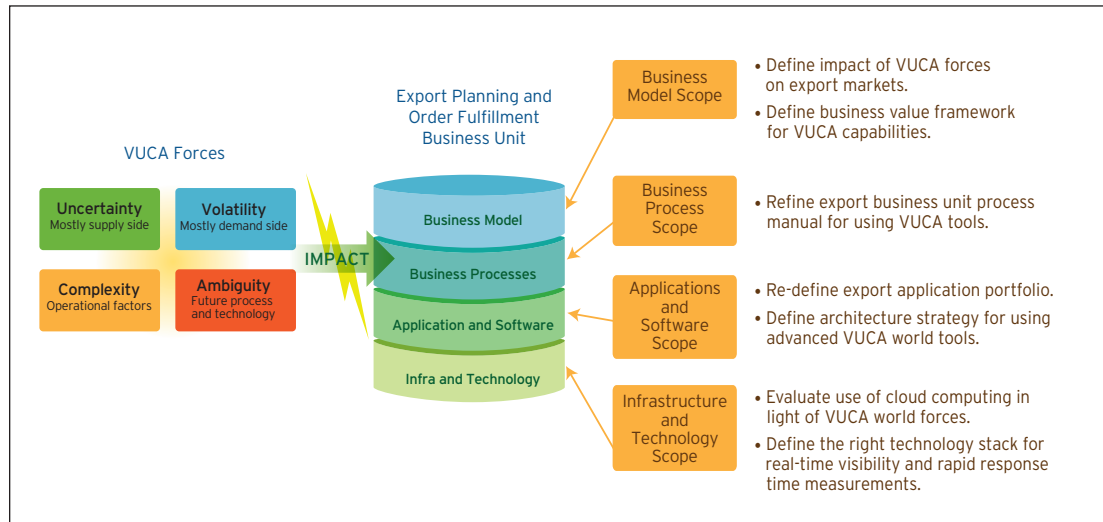


Figure 3

Such changes are easy to suggest but difficult to implement for export organizations with complex inter-business-unit relations with domestic sales units. Hence, we recommend a structured approach for creating a business operating model to evaluate the impact of each of the VUCA world forces and suggest effective process changes.

The approach will help organizations embrace a systematic evaluation of existing processes and tools for generating actionable insights that the automotive export business units can use for practical purposes.

Turning VUCA Forces to Your Advantage

Automotive export units need to evaluate their ability to perform effective export sales planning and order fulfillment business processes in light of the four VUCA forces. This evaluation can be done by using a framework that unearths key supply chain issues and identifies enabling process and technology changes. Such a framework can help organizations prioritize and manage issues that they face during periods of demand peaks, downturns and stagnations or supply chain disruptions.

Contending with the VUCA World

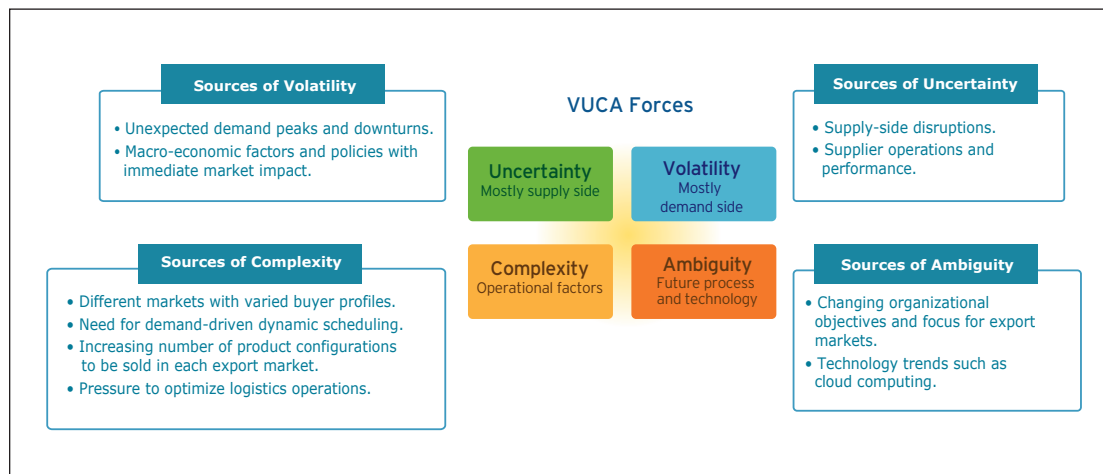


Figure 4

Framing VUCA Enablers

	Volatility	Uncertainty	Complexity	Ambiguity
Key Issues	<ul style="list-style-type: none"> Changing demand conditions characterized by peaks and downturns Volatility in macroeconomic factors such as interest rates, currency exchange rates and fuel prices that directly impact vehicle sales 	<ul style="list-style-type: none"> Supply-side disruptions. Lack of real-time visibility. Lack of control over supplier performance and operations. 	<ul style="list-style-type: none"> Managing different markets with varied buyer profiles. Managing an increasing number of product configurations across different markets. Measuring and optimizing transportation costs. Scheduling dynamically to meet changing demands. 	<ul style="list-style-type: none"> Changing organizational objectives and the focus for export markets. Evolving technology trends.
Key Process Solutions	<ul style="list-style-type: none"> Increasing productive consultations with dealerships, leading to greater market intelligence. Incorporating demand scenario analysis as a routine activity for weekly planning review meetings. 	<ul style="list-style-type: none"> Developing capability to get real-time view of capacity vs. demand. Writing flexible supplier contracts to allow for changes in parts orders in real time. Ensuring supplier participation in the design and usage of rapid collaboration tools. 	<ul style="list-style-type: none"> Institutionalizing frequent reviews among management, sales and operations. Increasing speed of acquiring and assimilating information. Using structured analytics for better market insights and planning/forecasting. 	<ul style="list-style-type: none"> Defining a clear business technology roadmap for the export business unit.
Key Process Enablers	<ul style="list-style-type: none"> Statistical analysis of historical demand and associated macroeconomic factors. Ability to evaluate what-if scenarios in quantitative terms. Automated creation of sales plans, based on selected scenarios and actual sales numbers each month. Enabling real-time supply chain visibility through a single unified user interface. Enabling technology for dynamic scheduling. Centralized data warehouse platform to view and dissect information. Tools to capture total cost to serve for an export destination. 			

Figure 5

Based on our experience, we propose a framework that identifies the source of volatility, uncertainty, complexity and ambiguity faced by the export sales and planning and order fulfillment teams (see Figure 4).

Once the sources of VUCA forces are identified, the framework focuses on finding key process solutions and tools to help prepare business teams for all the challenges of the VUCA world. A sample list of the process solutions and enablers can be found in Figure 5.

Once the set of process solutions and process enablers are identified, organizations can then determine the application software and technology scope by defining and identifying the tools that can be implemented, in order of their importance, as identified in the business operating model.

These tools have the capacity to directly impact both the top and bottom lines of export business

units by increasing market share and improving productivity in the day-to-day to operations of export sales team(s) and supply chain executives. Finally, we believe these tools may help increase overall organizational profitability by effectively serving the export markets that are the future markets of automotive companies in the U.S. What follows is a representative set of tools that can be leveraged to accomplish these goals:

- Tools for scenario analysis based on market volatility:** Over the past year and into 2012, U.S.-based vehicle sellers have exported vehicles to more than 200 countries with varied buyer profiles and divergent macroeconomic policies. Given the demand for different vehicle configurations and associated product complexities, export sales planning teams struggle to analyze the impact of macroeconomic changes, competitor actions, targeted marketing campaigns, etc. and predict changes in demand patterns.

We believe these business teams need to be equipped with technology tools that project demand and perform what-if scenario analysis based on changes in macroeconomic factors. A representative list of capabilities of such tools includes:

- Scenario analysis for the sales of each vehicle model given an interest rate change in conjunction with marketing campaign spending in the export market.
- Scenario analysis that involves an anticipated increase in the market share of competitors and the associated impact on sales of a particular model.
- Scenario analysis that evaluates best, average and worst cases of exchange rate or interest volatility.
- Scenario analysis that evaluates best, average and worst cases of the overall auto industry in an export market.

Using such tools, the export sales planning teams can gauge the impact on the entire auto industry in a given export market and plan for a corrective course of action.

- **Tools for rapid re-planning and collaboration:** Equipped with the right scenario analysis capabilities, export sales planning teams will be in a position to select the most likely scenario based on both demand- and supply-side constraints and re-plan the vehicle order production and delivery plans in near real time, but in the context of existing or potential rapid response capabilities.

This need necessitates a shift from manual-based feeder processes for re-planning and partner collaboration to a dynamic system-based information flow. Hence, export planning teams must look at developing tools that allow for seamless information flows through production delivery systems and logistics partner systems.

A representative list of capabilities of such tools relevant for export order fulfillment processes is as follows:

- What-if scenario analysis for effective sales planning.
- Accurate expected time of arrival (ETA) calculation.
- Scenario analysis for optimized inventory movement between various ports and

transportation hubs. Real-time visibility of shipments across the distribution path.

- **Tools for tracking and analyzing key performance indicators:** For measuring effectiveness of export sales planning and order fulfillment business processes, we believe organizations need to develop tools to track and analyze the following two indicators:

- **The Total Cost to Serve (TCTS):** This can be defined as the final cost of selling each vehicle in an export market. In today's outsourcing-centric environment, sales organizations and vehicle distributor companies are finding it critical to measure TCTS for end consumers in each export market. There are various advantages of incorporating the measurement and management of TCTS as a standard approach and as part of the sales planning and operational visibility business processes.

- » An analysis centered on total cost to serve for each country/region helps to identify sources of waste across the vehicle supply chain, as well as provides an end-to-end view of each market that enables executives to make faster decisions.

- » TCTS-centered sales planning meetings can go a long way toward improving the productivity of such weekly, biweekly and monthly interactions.

- » TCTS analysis can also help identify optimized transportation routes and reduce logistics costs.

- **Rapid Response Times:** This refers to the amount of time, in days, that a supply chain organization takes to return to its original operating performance in the face of an uncertain or unexpected event. The return to original operating performance can be defined in terms of specific metrics such as returning to the same number of OTD (order to delivery) days or a return to achieving the same ETA accuracy after an uncertain event has occurred. Organizations need to develop certain strategies to enable rapid responses, such as:

- » Making each manufacturing region self-sufficient, thus eliminating dependency on a single country for critical parts.

- » Analyze sourcing and the supply chain, identify bottlenecks and define a strat-

egy for alternate sourcing and distribution in the event of supply disruptions. Such uncertain or unexpected events could range from natural disasters, to unexpected supplier bankruptcies, to major production holds due to quality issues. Automotive export units, so far,

have handled such events as exceptions and have managed them in silos. However, we believe that the time has come for export units to learn from each disruptive event and use that learning in the future.

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About Cognizant

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