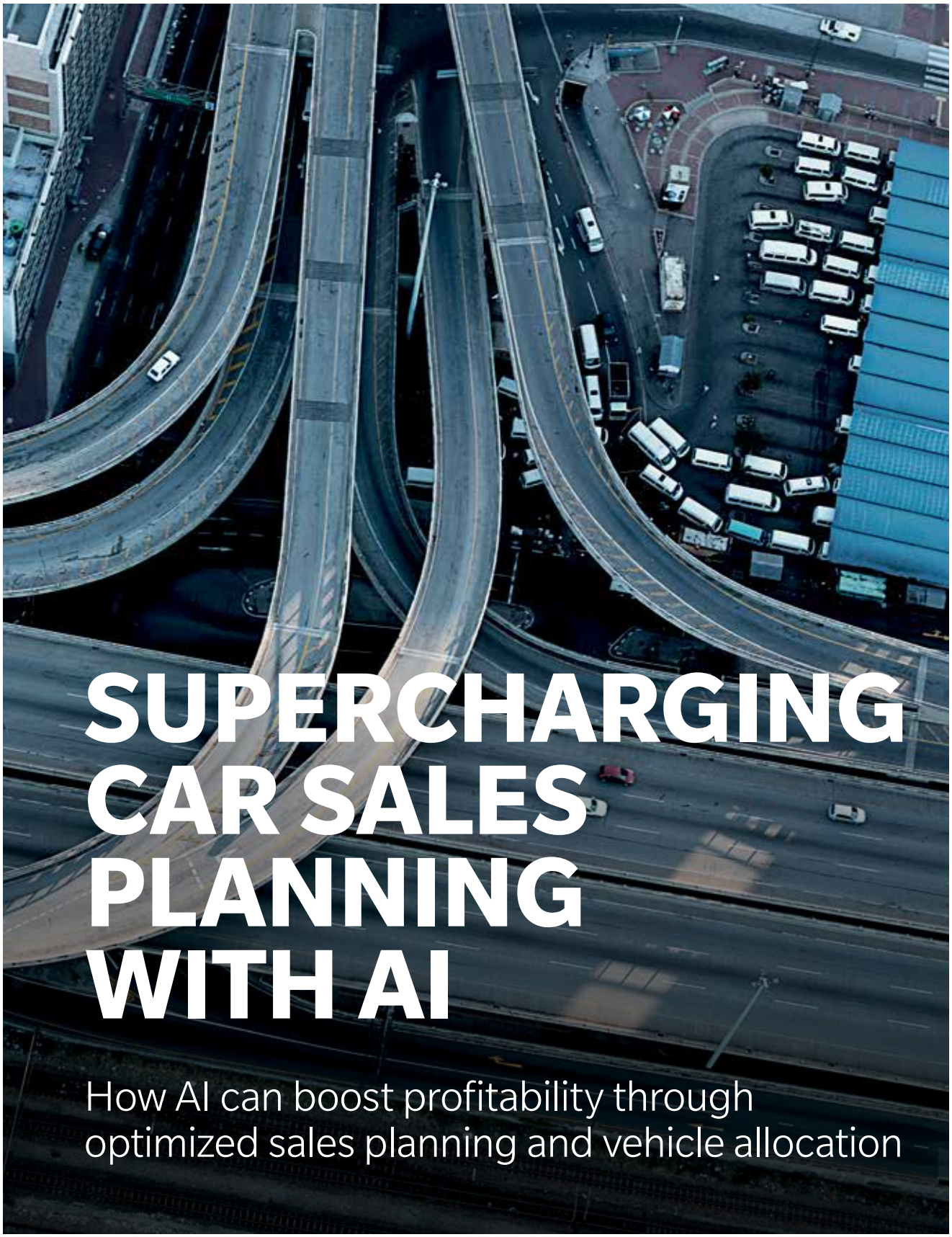


SUPERCHARGING CAR SALES PLANNING WITH AI

How AI can boost profitability through optimized sales planning and vehicle allocation

THE GOAL IS complex: deliver the right vehicle to the right dealer in the right country at the right time to make the most profitable sale. Automotive players across the globe strive to make it happen every day, but several trends are making it more challenging than ever.

First, inadequate sales volume planning creates inefficiencies. Second, ineffective allocation of vehicles across markets, customer segments, and channels results in major margin losses. And third, automakers sometimes struggle to follow an integrated approach across the sales value chain and to utilize all of the available information effectively.

Instead of relying on experience and gut feel to plan and allocate volumes, automakers now can leverage smart, data-driven tools based on artificial intelligence (AI), better meeting customer demand and boosting profitability across the downstream value chain. Experience suggests that establishing AI-based planning and sales excellence could improve total profitability per vehicle between 15 percent and 20 percent.

NEW CHALLENGES INCREASE COMPLEXITY

Several new issues have emerged in vehicle volume planning and allocation that can dramatically affect a car company's bottom line, making an already difficult job even harder. For instance, as new CO2 regulations or the Worldwide Light Vehicle Testing Procedure (WLTP) take effect in various regions, automakers must ensure adequate supplies of appropriately configured vehicles or face major penalties. In 2020, these regulations will limit the average CO2 emission per vehicle to 95 grams per kilometer across automakers' fleets. Based on current projections, not all automakers will reach that target. In total, joint penalties for automakers thus could add up to €3.6 billion. Car companies must also balance the growing demand for electric vehicles (EVs) against their lower overall profitability to ensure competitiveness and regulatory compliance without incurring unnecessary losses. With several carmakers targeting 50 percent EV market shares by 2025 – and with sales of their more profitable diesel cars likely to plunge – the challenge to sustain healthy margins will be enormous.

In this new environment, the traditional planning and allocation processes currently used by most automakers are likely to produce three types of shortages: across markets, if planners do not recognize shrinking demand in time; between models, as car volumes rise or fall; and between customer segments or channels, if marketers overlook profitable niches.

Automakers thus need to improve their processes to better satisfy customer demand, to react dynamically to market changes, and to increase overall profitability. An array of AI and advanced data analytics applications – including random forest analyses,

deep learning, and neural networks – can help overcome these challenges, attract new customers, and foster excellence in sales planning and volume allocation.

ACHIEVING SALES PLANNING EXCELLENCE

To optimize midterm sales planning using AI, players must migrate away from legacy "gut feel" and static planning approaches and embrace forward-looking, dynamic forecasts based on intelligent algorithms. Satisfying customer demand is the primary goal, following the question, "How many vehicles could we sell without current limitations and restrictions?"

Several proven AI applications to enhance sales planning already exist. For example, machine-learning technologies like "random forest" analyses combine multiple regression analyses to forecast vehicle volumes across various dimensions. The analysis relies on a limited number of external market variables (such as competitive intensity, market shares, GDP, and income distribution), along with internal company data (concerning product lifecycles, marketing spending, expiring leasing contracts, and web configurator data).

Companies often find that employing AI not only improves planning quality, it also increases flexibility, offering the opportunity of real-time adjustments. Ultimately, it is a better way to meet customer demand.

ATTAINING ALLOCATION SUPERIORITY

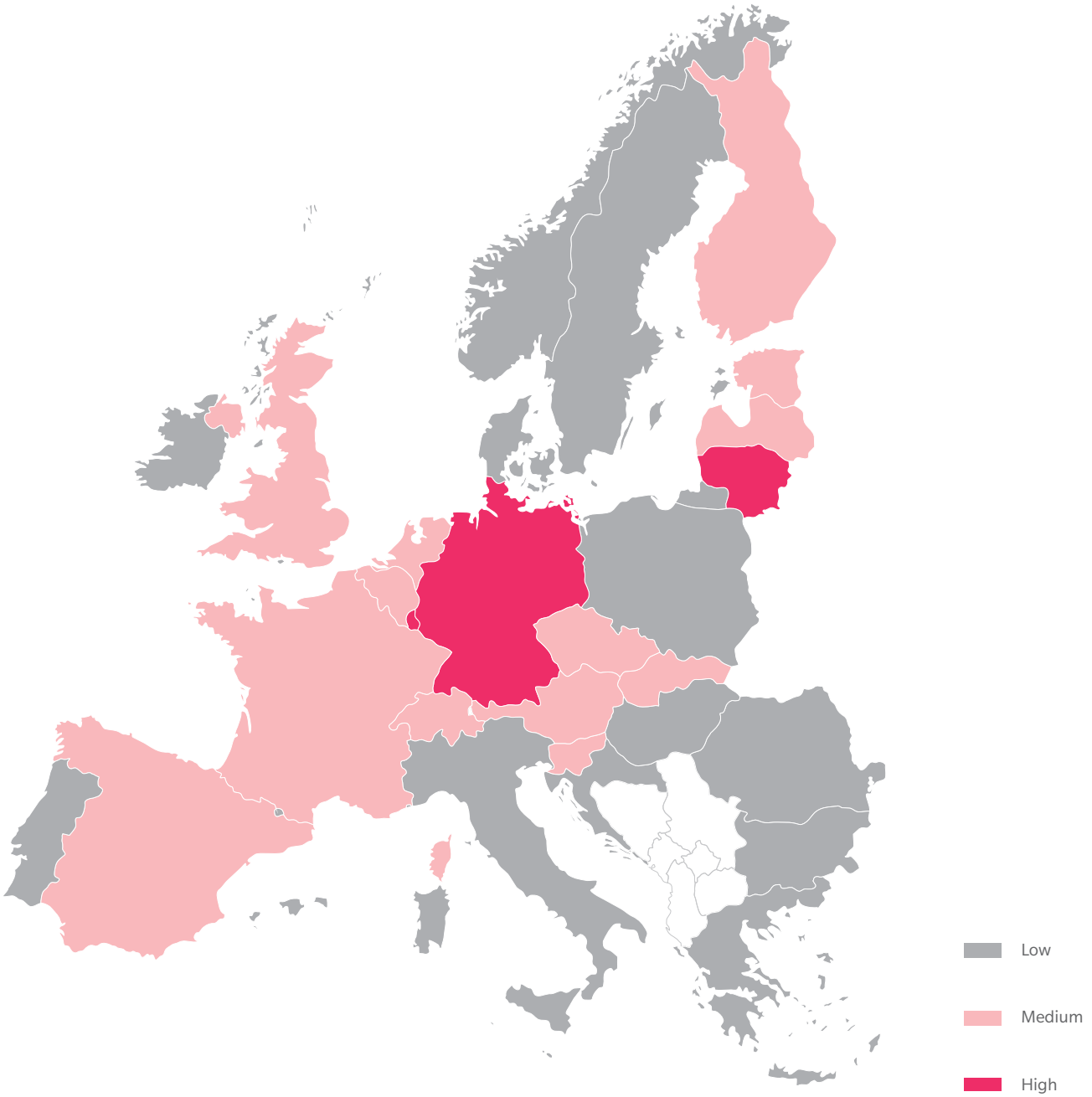
Advanced analytics can also help automakers optimize vehicle volume allocation in day-to-day operations. This can significantly boost profitability, either at the market level (within an attractive customer segment) or across sales channels. It brings new clarity to legacy allocation processes that more typically respond to pressure from market players that "shout the loudest." Advanced analytics focuses on where the greatest value truly lies.

Based on results from the above planning approach, AI allocation optimizes vehicle volume distribution. Here, the core question is, "How do we allocate vehicles under given constraints to maximize overall profits?"

Essentially, this value-driven approach is a mathematical optimization problem, solved by advanced analytics and statistics methods that take into account multiple, potentially interfering constraints. These might include production capacities, market share targets, competitive behaviors, price levels, logistics, and the like. Other potential impediments range from strategic and legal considerations, to CO2 targets. Furthermore, automotive players should consider four elements when optimizing vehicle volume allocation:

EXHIBIT 1: AVERAGE PROFIT CONTRIBUTION PER VEHICLE ACROSS EUROPEAN MARKETS1

Varying profit per vehicle across markets offers additional potential for car makers in case of profit-orientated volume allocation



1. Gross profit per vehicle minus cost of sales tacticals and incentives.
Source: Oliver Wyman analysis

Markets. Profit per vehicle varies widely across markets. (See Exhibit 1.) Within given restrictions such as market share targets, logistics, and production capacities, companies should allocate vehicle volumes to markets with higher profit potential.

Customer segments. Automakers need to optimize the profitability of customer segments within markets. A shift from large fleets and rental car sales with significant discount levels to a stronger focus on private customers can unlock significant profit potential (but will require strong brand power and potentially greater individual sales efforts).

Sales channels. In the future, the automotive industry will likely shift to an omnichannel sales and distribution ecosystem with varying vehicle volumes and profitability-per-channel performance. Steering this transformation successfully will require automakers to capture currently untapped margin potential.

CO2 management. As carbon dioxide regulations tighten, automakers must prioritize vehicle volume allocation strategies that can minimize or avoid high fleet emission levels.

SMARTER TOOLS FOR BETTER RESULTS

By using AI and advanced analytics, automakers can develop a sophisticated market planning and allocation approach that improves planning quality and flexibility, delivers the cars customers want, and increases total profitability in a range of 15 percent to 20 percent across models, markets, segments, and channels. With new planning and allocation challenges on the horizon, leaders should view this need not merely as a productivity boost but as an important way to enhance profitability and manage growing risk.

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